ALTUSEN™
Enterprise KVM Solutions by ATEN

# 8-Console 32-Port
# Matrix KVM Switch
# KM0832
# User Manual

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## FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## RoHS

This product is RoHS compliant.

## SJ/T 11364-2006

The following contains information that relates to China.

| 部件名称 | 有毒有害物质或元素 | | | | | |
|---|---|---|---|---|---|---|
| | 铅 | 汞 | 镉 | 六价铬 | 多溴联苯 | 多溴二苯醚 |
| 电器部件 | ● | ○ | ○ | ○ | ○ | ○ |
| 机构部件 | ○ | ○ | ○ | ○ | ○ | ○ |

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。

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# User Information

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## User Notice

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The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

## Package Contents

The KM0832 package consists of:

1 KM0832 Matrix KVM Switch

1 Power Cord

1 Rack Mount Kit

1 Foot Pad Set (4 pcs.)

1 User Manual*

1 Quick Start Guide

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the KM0832 installation.

***** Features may have been added to the KM0832 since this manual was printed. Please visit our website to download the most up to date version of the manual.

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Manual Part No. PAPE-0257-1AXG
Printing Date:12/2007

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# Contents

FCC Information . . . . . ii
SJ/T 11364-2006. . . . . ii
User Information . . . . . iii
Online Registration . . . . . iii
Telephone Support . . . . . iii
User Notice . . . . . iii
Package Contents. . . . . iv
About This Manual . . . . . ix
Overview . . . . . ix
Conventions . . . . . x
Product Information. . . . . x

***Chapter 1.***
**Introduction**
Overview . . . . . 1
Features . . . . . 2
Requirements . . . . . 4
Console . . . . . 4
Computers. . . . . 4
Cables . . . . . 5
Operating Systems . . . . . 5
KM0832 Front View. . . . . 6
KM0832 Rear View . . . . . 8

***Chapter 2.***
**Hardware Setup**
Overview . . . . . 9
Before you Begin. . . . . 9
Stacking and Rack Mounting . . . . . 10
Stacking. . . . . 10
Rack Mounting – Split . . . . . 11
Rack Mounting – Front . . . . . 13
Rack Mounting – Rear. . . . . 14
Grounding . . . . . 15
Single Level Installation . . . . . 16
Multilevel Installations . . . . . 18
Overview . . . . . 18
Cascading . . . . . 19
Daisy-chaining. . . . . 25
Network Installation. . . . . 28
Topology Considerations . . . . . 28

## *Chapter 3.*
## Basic Operation


Hot Plugging . . . . . 29
Switching Daisy-chained KVM Switch Positions . . . . . 29
Switching Cascaded KVM Switch Positions . . . . . 29
Hot Plugging User Ports . . . . . 29
Powering Off and Restarting . . . . . 30
Port Selection . . . . . 30


## *Chapter 4.*
## Administrator Utility


Overview . . . . . 31
Setting the IP Address . . . . . 32
Logging In . . . . . 34
Menus . . . . . 36
Icons . . . . . 37
Tree View Icons . . . . . 38
Port Status . . . . . 39
Naming Stations . . . . . 40
Setting the Webpage Session Timeout . . . . . 41
Network Configuration . . . . . 42
IP Installer Setting . . . . . 43
IP Address . . . . . 43
Port Settings . . . . . 43
System Event Reports . . . . . 44
Setting the Date and Time . . . . . 45
Group Management . . . . . 47
Adding Groups . . . . . 48
Modifying Groups . . . . . 49
Deleting Groups . . . . . 50
Managing Port Access Rights for Groups . . . . . 51
User Management . . . . . 53
Adding Users . . . . . 54
Modifying Users . . . . . 57
Deleting Users . . . . . 58
Managing Port Access Rights for Users . . . . . 59
Port Management . . . . . 61
Accessing Ports . . . . . 61
Managing Port Access . . . . . 62
Cascaded Installations . . . . . 66
Configuring Port Settings . . . . . 66
Restoring KVM Port Defaults . . . . . 68
Setting the OSD View . . . . . 69
View Mode . . . . . 70
Set Port ID . . . . . 70
Display Duration . . . . . 70

Set Scan . . . . . 71
Configuring OSD User Settings . . . . . 72
Searching for Ports and Stations . . . . . 74
Upgrading Firmware . . . . . 75
Downloading the Firmware Upgrade Package . . . . . 75
Preparing to Upgrade the Firmware . . . . . 76
Upgrading Firmware via the KM0832 Administrator Utility . . . . . 76
Upgrading Firmware via the Firmware Upgrade Utility . . . . . 78
Upgrade Failed . . . . . 81
Recovering from a Failed Firmware Upgrade . . . . . 82
Replacing the Root KM0832 with a Child KM0832 . . . . . 83
Backing Up and Restoring Settings . . . . . 84
Viewing and Ending User Sessions . . . . . 87
Viewing and Clearing the Log File . . . . . 89
Viewing System Information . . . . . 91
Viewing Help . . . . . 92
Logging Out . . . . . 92

***Chapter 5.***
**OSD Operation**
OSD Overview . . . . . 93
OSD Main Screen Headings . . . . . 96
OSD Navigation . . . . . 96
Accessing Switches and Computers . . . . . 97
Single Level Installation . . . . . 97
Cascaded Installations . . . . . 97
Daisy-chained Installations . . . . . 98
Port ID Numbering . . . . . 99
Cascaded Installations . . . . . 99
Matrix Plus KVM Adapter Cable Installations . . . . . 99
Daisy-chained Installations . . . . . 100
OSD Functions . . . . . 101
F1: HELP . . . . . 102
F2: VIEW . . . . . 102
F3: SET . . . . . 104
F4: ADM . . . . . 106
F5: SCH . . . . . 115
F6: BCK . . . . . 115
F7: SCAN . . . . . 116
F8: LOUT . . . . . 117

*Chapter 6.*
**Hotkey Operation**
Hotkey Port Control . . . . . 119
Invoking Hotkey Mode . . . . . 119
Port Switching . . . . . 120
Auto Scanning . . . . . 121
Hotkey Beeper Control . . . . . 123
Hotkey Summary Table . . . . . 124

*Chapter 7.*
**Keyboard Emulation**
Mac Keyboard . . . . . 125
Sun Keyboard . . . . . 126

**Appendix**
Safety Instructions . . . . . 127
General . . . . . 127
Rack Mounting . . . . . 129
Technical Support . . . . . 130
International . . . . . 130
North America . . . . . 130
Specifications . . . . . 131
Factory Default Settings . . . . . 132
Additional Installation Diagrams . . . . . 133
Supported KVM Switches . . . . . 137
Trusted Certificates . . . . . 138
Overview . . . . . 138
Installing the Certificate . . . . . 139
Certificate Trusted . . . . . 140
Troubleshooting . . . . . 141
Overview . . . . . 141
Sun Systems . . . . . 143
Restoring Original Factory Default Settings . . . . . 144
Entering the ok Prompt (Sun Solaris) . . . . . 145
Limited Warranty . . . . . 146

# About This Manual

This User Manual is provided to help you get the most from your KM0832 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

## Overview

**Chapter 1, Introduction,** introduces you to the KM0832 System. Its purpose, features, and benefits are presented, and its front and back panel components are described.

**Chapter 2, Hardware Setup,** provides step-by-step instructions for setting up your installation, and explains some basic operating procedures.

**Chapter 3, Basic Operation,** explains the fundamental concepts involved in operating the KM0832.

**Chapter 4, Administrator Utility,** describes how to login to the KM0832 with your browser and explains the administrative procedures that are employed to configure the KM0832's working environment using the KM0832 Administrator Utility.

**Chapter 5, OSD Operation,** provides detailed information for configuring and controlling your installation using the KM0832's intuitive, mouse-driven On Screen Display (OSD) menus.

**Chapter 6, Hotkey Operation,** explains the concepts and procedures used to control the KM0832 from the keyboard.

**Chapter 7, Keyboard Emulation,** lists the keys for a PC-compatible keyboard to emulate the functions of the Mac and Sun keyboards.

**An Appendix,** at the end of the manual provides technical and troubleshooting information.

## Conventions

This manual uses the following conventions:

| | |
|---|---|
| Monospaced | Indicates text that you should key in. |
| [ ] | Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt]. |
| 1. | Numbered lists represent procedures with sequential steps. |
| ♦ | Bullet lists provide information, but do not involve sequential steps. |
| → | Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*. |
| | Indicates critical information. |

# Product Information

For information about all ALTUSEN products and how they can help you connect without limits, visit ALTUSEN on the Web or contact an ALTUSEN Authorized Reseller. Visit ALTUSEN on the Web for a list of locations and telephone numbers:

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# Chapter 1
# Introduction

## Overview

The KM0832 Matrix KVM Switch gives IT administrators advanced control of multiple computers. Operators working at up to 8 keyboard, monitor, and mouse (KVM) consoles can independently and simultaneously take direct control of up to 32 computers. Using ATEN's advanced video routing technology, users can separately access up to 8,000 KVM ports in cascaded KM0832 at the same time.

The 8 KVM consoles belonging to the first-level KM0832 are able to access all the computers on the installation – those that are directly connected as well as those that are daisy-chained and cascaded. The 4 or 2 KVM consoles belonging to each daisy-chained KM0432 or KM0216 Matrix KVM Switch can access the computers that are connected to them on the same daisy-chain level.

The KM0832 allows both PS/2 and USB KVM consoles to control PS/2, USB, Sun, Mac, and serial devices. The KM0832 uses Cat 5 cables to send and receive signals up to 300 meters between console modules and KVM adapter cables, while Auto Signal Compensation (ASC) helps maintain high video resolution. In addition, use of RJ-45 connectors saves precious IT real estate by allowing a full 8 user ports and 32 KVM ports to reside in a single 1U housing.

Setup is fast and easy—plugging cables into their appropriate ports is all that is entailed. Because the KM0832 intercepts keyboard and mouse input directly, there is no software to configure, so there is no need to get involved in complex installation routines or be concerned with incompatibility problems.

The Web-based KM0832 Administrator Utility allows users to configure the KVM installation, account settings, and user access from anywhere, anytime. Access to any computer is easily accomplished either by means of a powerful menu-driven On Screen Display (OSD) system, or by entering *Hotkey* combinations from the keyboard. A convenient *Auto Scan* feature also permits automatic scanning and monitoring of the activities of all computers running on the installation one-by-one.

# Features

- Eight KVM consoles independently and simultaneously control up to 32 directly connected computers
- Automatic video routing technology enables multiple KVM consoles to access separate ports in cascaded KM0832 at the same time
- Supports up to 1024 user accounts
- Supports up to 256 group accounts
- Easy Web browser access to the KM0832 Administrator Utility to configure and maintain the KVM installation
- Saves valuable time – backup and restore settings when changing root stations[1]
- Supports password authentication
- Three-level user access control (Super Administrator, Administrator, and User)
- Configure port access rights via user or group account settings, or on a port-by-port basis
- Cascade up to 3 levels of KM0832 and 1 level of non-KM0832 KVM switches to support more than 8,000 computers[2]
- Multiplatform support: PC, Mac, Sun, and serial
- Detachable front panel for easy access to front and rear of unit
- Console conversion – any type of KVM console can control any type of computer; mixed combinations (PS/2 & USB) supported on both the KVM console and computer sides
- Additional user port on front panel for easy system maintenance[3]
- Hot pluggable – add or remove components without having to power off the KVM switch
- No software to install

1. Backup user and group accounts, station names, port access rights, and user profile settings.
2. See *Multilevel Installations*, page 18, for a list of supported non-KM0832 KVM switches.
3. Shares the same bus with USER PORT 1 on the rear panel.

- Convenient computer selection via intuitive hotkey combinations or On Screen Display (OSD) menus
- Graphical user interface for convenient, user-friendly operation, supported by the KA9233 Console Module and Web-based Administrator Utility
- Daisy-chain up to 7 additional KM0432 or KM0216 Matrix KVM Switches[1]
- Auto-sensing of station's position on daisy-chain installations – OSD and front panel LED indicates station's position
- Port names are automatically reconfigured when the station sequence is changed
- OSD screen automatically adjusts to resolution changes
- Auto Scan feature for monitoring user-selected computers
- Super Administrators can view and end sessions of other users
- Super Administrators can broadcast keyboard input to all computers in the KVM installation
- PS/2 keyboard and mouse emulation – computers boot even when the KVM console focus is elsewhere
- LCD, VGA, SVGA, XGA, and MultiSync support; DDC2B
- Superior video quality – 1024 x 768 @ 60Hz for up to 300 m; 1920 x 1440 @ 60Hz (distance depends on installation environment)
- Auto Signal Compensation (ASC) assures optimum video resolution for distances up to 300 m between computers and KVM consoles – no DIP switch setting required
- Free lifetime firmware upgrades
- Compact design – rack mounts in only 1U of rack space
- Multi-architecture compatibility
  - PC (x86/x64)
  - Macintosh PowerPC
  - Sun Microsystems Sparc
- Allows centralized control of computers located at non-contiguous locations on the site

1. If this feature is not operative on your unit, you will need a newer version of the firmware. Contact your dealer for details.

# Requirements

## Console

The following hardware components are required for each KVM console:

- A VGA, SVGA, or MultiSync monitor capable of displaying the highest resolution provided by any computer in the installation
- Keyboard and mouse (PS/2 or USB)

Console modules are required to connect KVM consoles to the KM0832. They provide flexibility for your installation by allowing PS/2 and USB interfaces to be mixed and matched at the KVM console side. The console modules currently available are listed in the table below. Contact your dealer for details or refer to the documentation included with your console module.

| Function | Model Number |
|---|---|
| PS/2 Console Module | KA9222A |
| PS/2-USB Combo Graphic Console Module | KA9233 |
| USB Console Module | KA9272A |

## Computers

The following hardware components are required for each computer:

- A VGA, SVGA, or MultiSync video graphics card with an HDB-15 port; or, for legacy Sun systems, a Sun 13W3 video port
- PS/2 mouse and keyboard ports (6-pin Mini-DIN), or at least one USB port; or, for legacy Sun systems, a Sun style keyboard port (8-pin Mini-DIN)

## Cables

KVM adapter cables connect multiplatform computers (PS/2, USB, Sun, Mac, and serial) and certain cascaded KVM switches to the KM0832. The KVM adapter cables currently available are listed in the table below. Contact your dealer for details.

| Function | | Model Number |
|---|---|---|
| KVM adapter cables | For PS/2 computers | KA9120 |
| | For Sun legacy computers | KA9130 |
| | For Sun USB computers | KA9131 |
| | For serial devices | KA9140 |
| | For USB computers | KA9170 |

One or more of the following cables are also required for use with the KM0832:

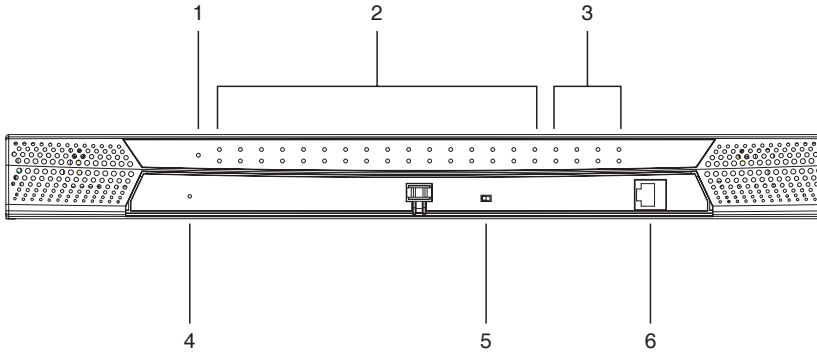
| Function | Type |
|---|---|
| Console module or KVM adapter cable to KM0832 (see page 134) | Cat 5 cable |
| Daisy-chain cables | LIN5-50H1-H12 (15 cm)<br>2L-1700KM (60 cm)<br>2L-1701KM (1.2 m)<br>2L-1704KM (4 m) |

## Operating Systems

Supported operating systems are shown in the table, below:

| OS | | Version |
|---|---|---|
| Windows | | 2000 and higher |
| Linux | RedHat | 6.0 and higher |
| | SuSE | 8.2 and higher |
| | Mandriva (Mandrake) | 9.0 and higher |
| UNIX | AIX | 4.3 and higher |
| | FreeBSD | 3.51 and higher |
| | Sun | Solaris 8 and higher |
| Novell | Netware | 5.0 and higher |
| Mac | | OS 9 and higher |
| OS/2 | | Warp Ver. 2 |
| DOS | | 6.22 |

# KM0832 Front View




| No. | Component | Description |
|---|---|---|
| 1 | Power LED | Lights (blue) to indicate that the unit is receiving power. |
| 2 | Port LEDs | ◆ A steady amber light indicates the KVM port is selected and the connected computer is on.<br>◆ A flashing amber light indicates the KVM port is selected and the KVM port is cascaded to a powered on KVM switch.<br>◆ A steady green light indicates the KVM port is not selected, and the connected computer is on.<br>◆ A flashing green light indicates the KVM port is not selected and the KVM port is cascaded to a powered on KVM switch.<br>◆ A steady red light indicates the KVM port is selected, and the connected computer is off, or there is no computer connected.<br>◆ The LED does not light when a KVM port is not selected and the connected computer is off. |
| 3 | User Port LEDs | ◆ Lights (green) to indicate that the console module connected to the corresponding user port is online.<br>◆ Flashes when cascaded from the KVM port(s) of a parent KVM switch. |

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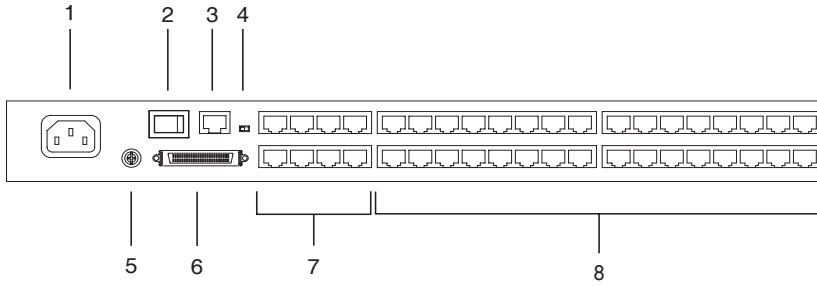
| No. | Component | Description |
|---|---|---|
| 4 | Reset Button | Pressing in this button performs a system reset. When the system is reset, the KM0832 beeps, and then the KVM port LEDs flash in succession until the reset is completed. After the reset is completed you can login again.<br><br>**Note**: This button is semi-recessed and must be pushed with a thin object — such as the end of a paper clip or a ballpoint pen. |
| 5 | User Port 1 Switch | This switch selects which USER PORT 1 is active-the one on the front panel or the rear panel. Set it to FRONT to activate USER PORT 1 on the front panel; set it to REAR to activate USER PORT 1 on the rear panel. |
| 6 | USER PORT 1 (Maintenance Port) | This user port is provided for convenient and easy access for system maintenance. It shares the same function with USER PORT 1 on the rear panel. By switching the USER PORT 1 switch to FRONT, USER PORT 1 on the rear panel is deactivated and USER PORT 1 on the front panel is activated. Use it just as you would any other user port. (You must return the USER PORT 1 switch to the REAR position to reactivate USER PORT 1 on the rear panel.) |

# KM0832 Rear View

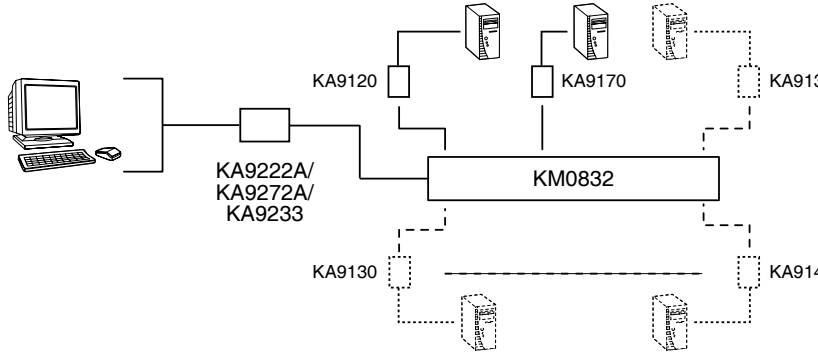



| No. | Component | Description |
|---|---|---|
| 1 | Power Socket | The power cord to the AC source plugs in here. |
| 2 | Power Switch | This is a standard rocker switch that powers the KVM switch on and off. |
| 3 | Configuration Port | The KM0832 is connected to the local network via the CONFIGURATION port. It provides access to the KM0832 Administrator Utility to configure the KVM installation, create and manage user and group accounts, set device access permissions, upgrade firmware, etc. |
| 4 | Firmware Upgrade Switch | During normal operation and while performing a firmware upgrade, this switch should be in the NORMAL position. If a firmware upgrade operation does not complete successfully, this switch is used to perform a firmware upgrade recovery. See *Recovering from a Failed Firmware Upgrade*, page 82 for details. |
| 5 | Grounding Terminal | The grounding wire used to ground the unit attaches here. |
| 6 | CHAIN OUT Port | When daisy-chaining KVM switches (see page 25), the CHAIN OUT port is used to connect the lower-level KVM switches in the chain.<br>**Note**: If this feature is not operative on your unit, you will need a newer version of the firmware. Contact your dealer for details. |
| 7 | User Port | The Cat 5 cables from the console modules plug in here. USER PORT 1 shares its KVM access with USER PORT 1 on the front panel. The USER PORT 1 switch (front panel) controls which of the two user ports is active. see *User Port 1 Switch*, page 7, for more information. |
| 8 | KVM Ports | The Cat 5 cables that link the KVM adapter cables to the KM0832 plug in here. |

# Chapter 2
# Hardware Setup

## Overview

For convenience and flexibility that allows mixing the PS/2 and USB interfaces, the KM0832's design utilizes *console modules* that act as signal translation intermediaries between the KVM consoles and the KVM switch, and *KVM adapter cables*, that serve as intermediaries between the KVM switch and the computers:




A separate console module is required for each KVM console; likewise, a separate KVM adapter cable is required for each computer. The console modules and KVM adapter cables are listed in the *Cables* section on page 5. Consult your dealer to find out which console modules and KVM adapter cables best fit your needs.

## Before you Begin

1. Important safety information regarding the placement of this device is provided on page 127. Please review it before proceeding.
2. Make sure that power to all the devices you will be connecting up has been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

# Stacking and Rack Mounting

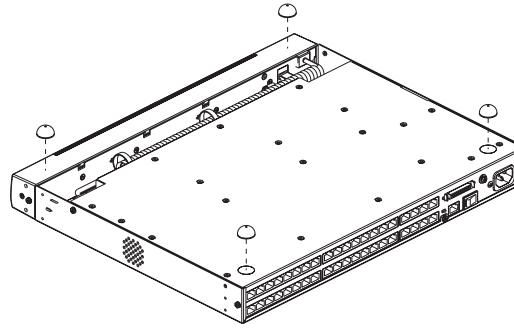
The KM0832 can be stacked on the desktop or rack mounted by a variety of different methods in 1U of rack space. The procedures for each method are described in the following sections.

**Note:** 1. The rack mounting kit does not include screws or cage nuts for attaching the KM0832 to a rack. If you need additional screws or cage nuts, contact your rack dealer.

2. Allow at least 5.1 cm on each side for adequate ventilation and 12.7 cm at the rear for power cord and cable clearance.

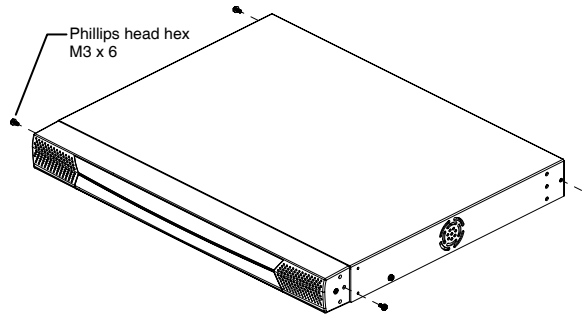
## Stacking

The KM0832 can be placed on any level surface that can safely support its weight and the weight of the attached cables. Ensure that the surface is clean and free of materials that can block the exhaust vents or otherwise interfere with normal operation of the KVM switch. A foot pad set is included with the unit. Peel the protective backing off of the foot pads, and then affix the foot pads to the bottom panel of the KM0832 at the corners, as shown in the diagram below.

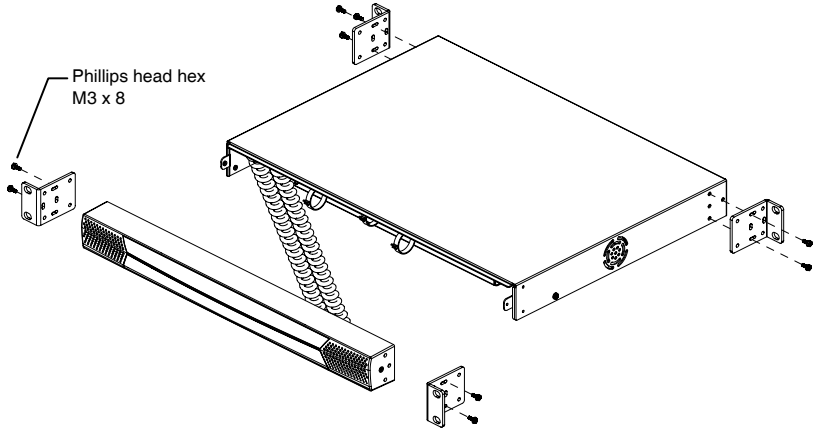


## Rack Mounting – Split

1. Remove the four screws from the sides of the unit, two at the front and two at the rear. The two screws at the front secure the detachable front panel to the chassis.




2. Detach the front panel from the chassis; however, leave the cables attached. Use the M3 x 8 Phillips head hex screws supplied with the rack mounting kit to screw the rack mounting brackets into the sides of the front panel and chassis.

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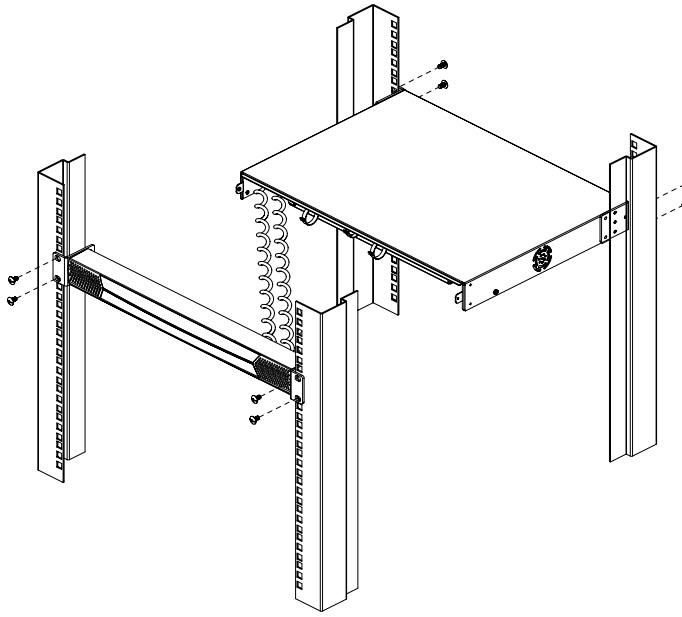
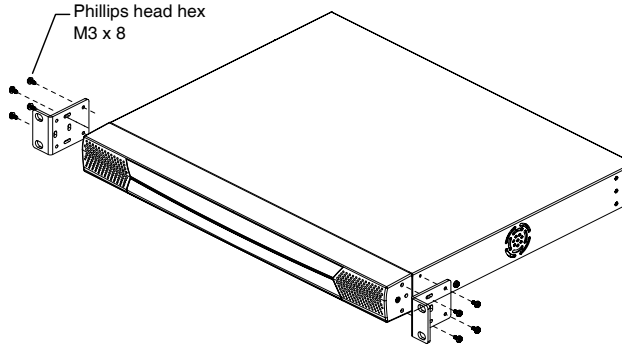
*(Continued from previous page.)*

3. Place the KVM switch in the rack. Position it so that the holes in the mounting brackets line up with those in the rack. Secure the mounting brackets to the front and rear of the rack.

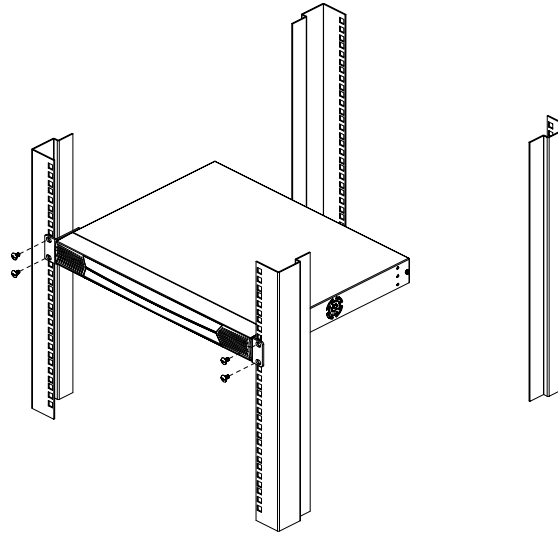


## Rack Mounting – Front

1. Remove the two screws that secure the detachable front panel to the chassis. (See Step 1 under *Rack Mounting – Split*, page 11.)
2. Use the M3 x 8 Phillips head hex screws supplied with the rack mounting kit to screw the rack mounting brackets into the sides at the front of the unit.

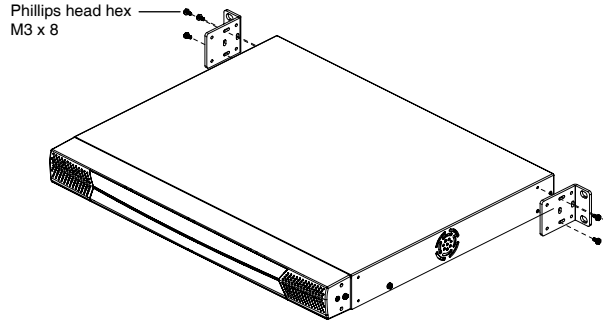



3. Place the KVM switch in the rack. Position it so that the holes in the mounting brackets line up with those in the rack. Secure the mounting brackets to the front of the rack.

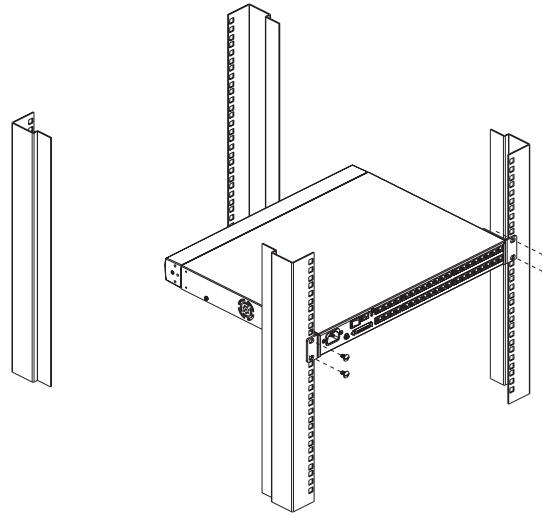


## Rack Mounting – Rear

1. Remove the two screws from the sides at the rear of the unit. (See Step 1 under *Rack Mounting – Split*, page 11.)
2. Use the M3 x 8 Phillips head hex screws supplied with the rack mounting kit to screw the rack mounting brackets into the sides at the rear of the unit.



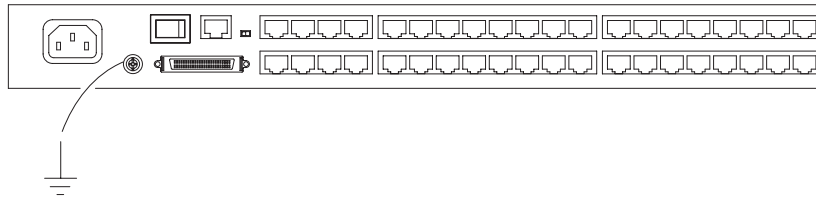

3. Place the KVM switch in the rack. Position it so that the holes in the mounting brackets line up with those in the rack. Secure the mounting brackets to the rear of the rack.



# Grounding

To prevent damage to your installation it is important that all devices are properly grounded.

Use a grounding wire to ground the KM0832 by connecting one end of the wire to the grounding terminal, and the other end of the wire to a suitable grounded object.



## Single Level Installation

In a single level installation, there are no additional KVM switches cascaded or daisy-chained down from the first-level KVM switch. To set up a single-level installation, refer to the diagram on page 17 (the numbers in the diagrams correspond to the numbered steps) and do the following:

1. Connect the KVM console to the console module.

   Plug your keyboard, mouse, and monitor into their respective ports on the console module. Each port is marked with an identifying icon.

2. Connect the console module to the KM0832.

   Use Cat 5 cable to connect the Link port of the console module to one of the user ports on the KM0832's rear panel.

   (Repeat steps 1 and 2 for all KVM consoles that you wish to connect. Up to 8 KVM consoles may be connected in this fashion.)

   **Note:** The distance between any console module and any KVM adapter cable must not exceed 300 m (1000').

3. Connect the KVM adapter cable to the computer.

   Plug the connectors on the KVM adapter cable into the appropriate ports on the computer you are installing.

4. Connect the KVM adapter cable to the KM0832.

   Use Cat 5 cable to connect a compatible KVM adapter cable to any available KVM port on the KM0832.

   (Repeat steps 3 and 4 for all computers that you wish to connect. Up to 32 computers may be connected in this fashion.)

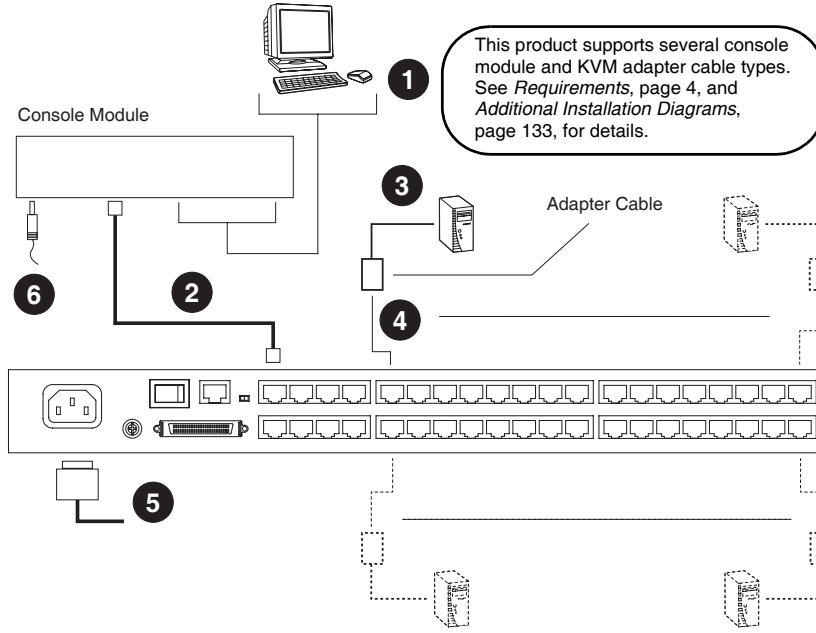
5. After all your computers have been cabled up, plug the power cord into the KM0832's power socket and an AC power source.

6. Connect the power adapter to the console module and to an AC power source appropriate for the device.

7. Turn on the power to the KM0832.

8. Turn on the power to the computers.

## Single Level Installation Diagram



# Multilevel Installations

You can greatly expand the number of computers that can be added to your installation by performing a multilevel installation. The KM0832 supports two types of multilevel installation:

- Cascading
- Daisy-chaining

## Overview

Cascading involves using the KVM port(s) of a *parent* KVM switch (one that is above a KVM switch linked down from it) to connect to the user ports of a *child* KVM switch.

Daisy-chaining refers to adding a KVM switch via a dedicated daisy-chain port (see the diagram on page 27). When daisy-chaining KM0432 or KM0216 Matrix KVM Switches, KVM Ports 1–4 on the first-level KM0832 will be unusable. Neither computers nor cascaded KVM switches can be connected to these KVM ports.

The KM0832 supports both daisy-chaining and cascading, providing enormous capacity and flexibility to expand the installation. The following sections provide information and procedures to set up cascaded and daisy-chained KVM installations.

**Note:** If the daisy-chain feature is not operative on your unit, you will need a newer version of the firmware. Contact your dealer for details.

## Cascading

The KM0832 supports cascading up to 3 levels of KM0832 and 1 level of KVM switches other than the KM0832 (see *Supported KVM Switches*, page 137). However, no matter how many levels of KM0832 are cascaded, you can only cascade 1 level of other KVM switches. After cascading a KVM switch other than the KM0832, you cannot cascade any more child KVM switches from the non-KM0832 switch.

Compatible KVM switches allow all of the separate switch OSDs to be integrated so that when the first level KM0832 consoles bring up the OSD, the port directory lists all of the computers connected to all of the cascaded switches.

In cascaded installations, the number of bus connections between a parent and child KVM switch determines the number of users that can simultaneously access the KVM ports of a child KVM switch. A bus connection is established by connecting a KVM port on the parent KVM switch to a user port on the child KVM switch. The KM0832 supports a maximum of eight bus connections for each cascaded KM0832, and usually no more than one for other KVM switches.

In order for all eight KVM consoles on the first-level KM0832 to be able to access the KVM ports of a cascaded KM0832 at the same time, you must create eight bus connections between the first-level KVM switch and the child KVM switch. If the two KVM switches are not directly connected, the intermediary KVM switch(es) must have eight bus connections to the parent and child KVM switches.

KVM consoles connected to the user ports of a cascaded KVM switch can access KVM ports on the same level, or those of cascaded child switches, but cannot access KVM ports of parent switch(es).

### Cascading KM0832 Matrix KVM Switches

To cascade KM0832 Matrix KVM Switches (refer to the installation diagram on page 21):

**Note:** Before cascading additional KM0832, ensure that the firmware version of the KM0832 to be installed matches that of the first-level KM0832. Otherwise, they may be incompatible.

1. Connect the KVM console to the console module.

   Plug the keyboard, mouse, and monitor into the ports on the console module. Each port is marked with an identifying icon.

2. Connect the console module to the KM0832.

   Use Cat 5 cable to connect the Link port of the console module to one of the user ports on the KM0832's rear panel.

   (Repeat steps 1 and 2 for all KVM consoles that you wish to connect. Up to 8 KVM consoles may be connected in this fashion.)

   **Note:** The distance between any console module and any KVM adapter cable, or the first-level and last-level KVM switches, cannot exceed 300 m (1000').

3. Use Cat 5 cable to connect up to eight KVM ports on the first-level KVM switch to the user ports on the second-level KVM switch. (The number of KVM consoles on the first-level KM0832 that can simultaneously access the cascaded KVM switch is limited by the number of connections between the parent and child KVM switches.)

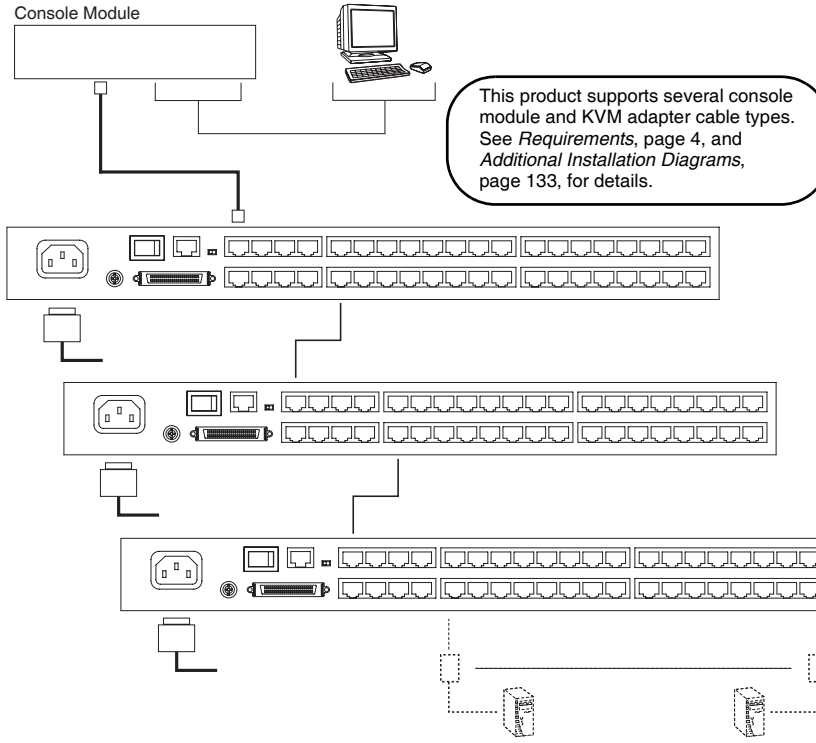
   (Repeat step 3 for each second-level KVM switch that you wish to cascade. If you wish to cascade any third-level KVM switches, follow the instructions in step 3 when cascading them from the second-level KVM switches.)

   **Note:** The maximum distance between any two KM0832 cannot exceed 150 m.

4. If you wish to cascade Matrix Plus KVM adapter cables, see *Cascading Matrix Plus KVM Adapter Cables*, page 22. If you wish to cascade KVM switches other than the KM0832, see *Cascading Other KVM Switches*, page 24.

5. Use Cat 5 cable to connect KVM adapter cables to any available KVM ports; plug the connectors on the KVM adapter cables into the keyboard, video, and mouse ports of the computers you wish to install.
6. Plug the provided power cable into the power socket on the first-level KM0832; connect the power cable to an AC power source with appropriate voltage for the KM0832, then turn on the KM0832.
7. Wait one minute, and then repeat step 6 for each second-level KM0832.
8. Wait one minute, and then repeat step 6 for each third-level KM0832.
9. Plug the power adapters supplied with the console modules into an appropriate AC power source, and then plug the power adapter cables into the power jacks on the rear of the console modules.
10. Turn on the power to all the computers.

### Cascaded KM0832 Installation Diagram


Console Module
This product supports several console module and KVM adapter cable types. See *Requirements*, page 4, and *Additional Installation Diagrams*, page 133, for details.

### Cascading Matrix Plus KVM Adapter Cables

You can connect a chain of Matrix Plus KVM adapter cables to each KM0832 KVM port. When connecting Matrix Plus KVM adapter cables to the KM0832, you do not need to install the MP0101M Master Module as with other matrix KVM switches. The table on page 137 lists compatible Matrix Plus KVM adapter cables and the computer platforms they support.

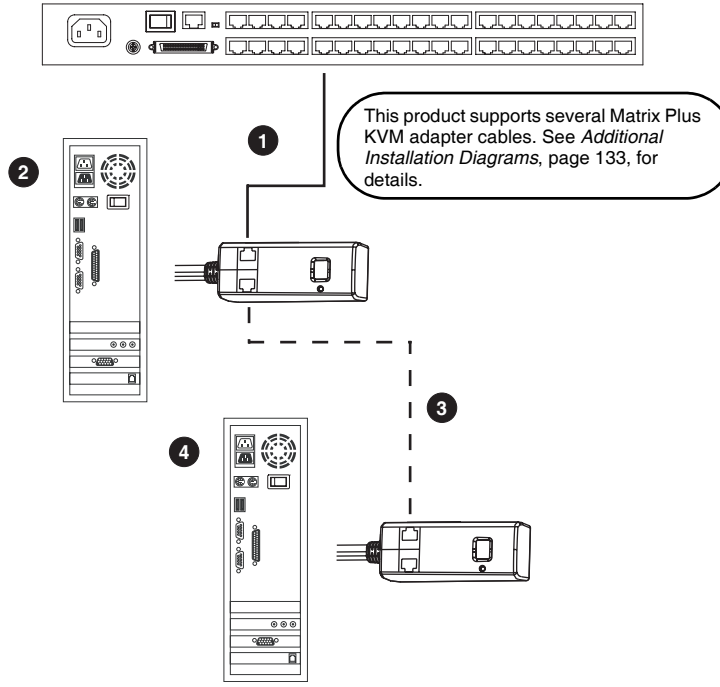
To install Matrix Plus KVM adapter cables, refer to the installation diagram on page 23 (the numbers in the diagram correspond with the numbers in the procedure) and do the following:

**Note:** 1. The total distance between the KM0832 and the last Matrix Plus KVM adapter cable in the chain cannot exceed 150 m (500').

2. The distance between adjacent Matrix Plus KVM adapter cables cannot exceed 0.5 m.

1. Use a Cat 5 cable to connect a KVM port on the KM0832 to the CHAIN IN port on a Matrix Plus KVM adapter cable.
2. Connect the cables on the Matrix Plus KVM adapter cable to the keyboard, video, and mouse ports on the computer you are installing. Stop here if you are installing only 1 Matrix Plus KVM adapter cable. Otherwise, go to Step 3 if you are chaining additional Matrix Plus KVM adapter cables.
3. Use a Cat 5 cable to connect the CHAIN OUT port on the first-level Matrix Plus KVM adapter cable to the CHAIN IN port on the second-level Matrix Plus KVM adapter cable.
4. Connect the cables on the Matrix Plus KVM adapter cable to the keyboard, video, and mouse ports on the computer you are installing.
5. Repeat steps 3 and 4 for any additional Matrix Plus KVM adapter cables you are installing in the chain.

## Matrix Plus KVM Adapter Cable Installation Diagram


This product supports several Matrix Plus KVM adapter cables. See *Additional Installation Diagrams*, page 133, for details.
1
2
3
4

### Cascading Other KVM Switches

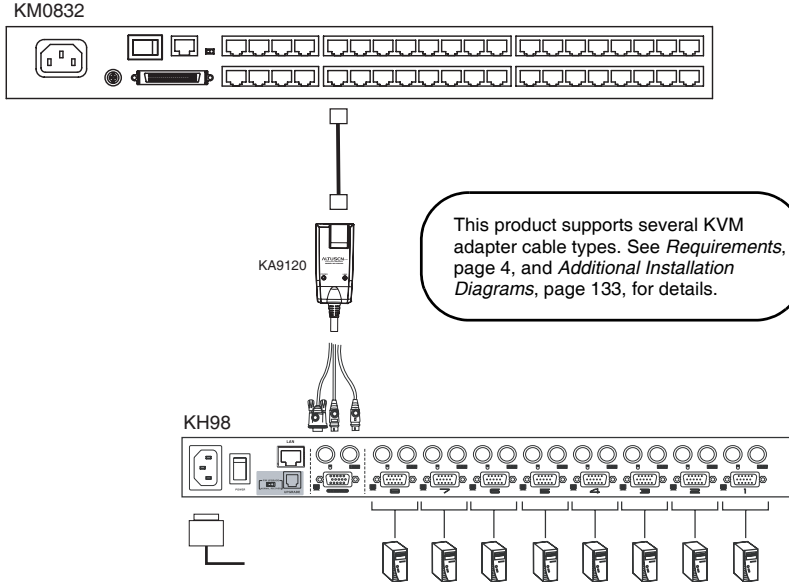
When cascading KVM switches other than the KM0832, a KVM adapter cable is required. The KVM adapter cable converts the KVM port connector used by the KM0832 to connectors appropriate for the KVM switch that you are installing. Refer to the table on page 5 that lists the KVM adapter cables and the platforms that they support.

**Note:** Only 1 non-KM0832 KVM switch can be cascaded from each KVM port, regardless of its position in the installation. After cascading a non-KM0832 KVM switch, you cannot cascade any more KVM switches from it.

To cascade a KVM switch other than the KM0832:

1. Use a Cat 5 cable to connect a KVM port on the KM0832 to the KVM adapter cable.
2. Connect the cables on the KVM adapter cable to the console ports on the KVM switch you are installing.
3. If you have not already done so, using KVM cables, connect the computer(s) to the KVM switch.

### Other Cascaded KVM Switch Installation Diagram


KM0832
KA9120
This product supports several KVM adapter cable types. See *Requirements*, page 4, and *Additional Installation Diagrams*, page 133, for details.
KH98

## Daisy-chaining

Up to 7 KM0432 or KM0216 Matrix KVM Switches can be daisy-chained to the first-level KM0832. When daisy chained with the KM0432 or KM0216, the KM0832 must occupy the *master* (first-level) position, while the KM0432 or KM0216 must be used as the *slave* KVM switch(es) (those KVM switches daisy-chained from the master KVM switch).

When daisy-chaining KM0432 or KM0216, KVM Ports 1–4 on the first-level KM0832 will be unusable. Neither computers nor cascaded KVM switches can be connected to these KVM ports.

The KM0832 is capable of supporting eight independent KVM consoles, while each KM0432 or KM0216 is capable of supporting 4 or 2 independent KVM consoles. In a complete daisy-chained installation, the eight KVM consoles that belong to the KM0832 can access and control all of the computers on the installation. The 4 or 2 KVM consoles belonging to each slave KM0432 or KM0216 KVM switch only control the computers connected to their respective KVM switches.

**Note:** If the daisy-chain feature is not operative on your unit, you will need a newer version of the firmware. Contact your dealer for details.

To set up a daisy-chained installation, refer to the diagram on page 27 and do the following:

1. Use a daisy-chain cable set (described in *Cables*, page 5) to connect the CHAIN OUT port of the first-level KM0832 to the CHAIN IN port of the slave KM0432 or KM0216 (first station out to second station in, second station out to third station in, etc.).

**Note:** 1. When daisy-chained with the KM0432 or KM0216, the KM0832 must occupy the first-level (master) position, while the KM0432 or KM0216 must be used as the slave station(s).

2. The maximum distance between any two KM0432 or KM0216 cannot exceed 10 m.

3. The maximum distance between the first-level KM0832 and the last KM0432 or KM0216 in the daisy-chain cannot exceed 20 m.

*(Continues on next page.)*

*(Continued from previous page.)*

2. If you wish to install any console modules or KVM adapter cables on the KM0432 or KM0216, follow the procedures described in *Grounding*, page 15.

   (Repeat the above steps for any additional KM0432 or KM0216 you wish to add to the chain.)

3. Plug the power cords into an AC power source and into the power sockets on the KM0832 and KM0432 or KM0216.

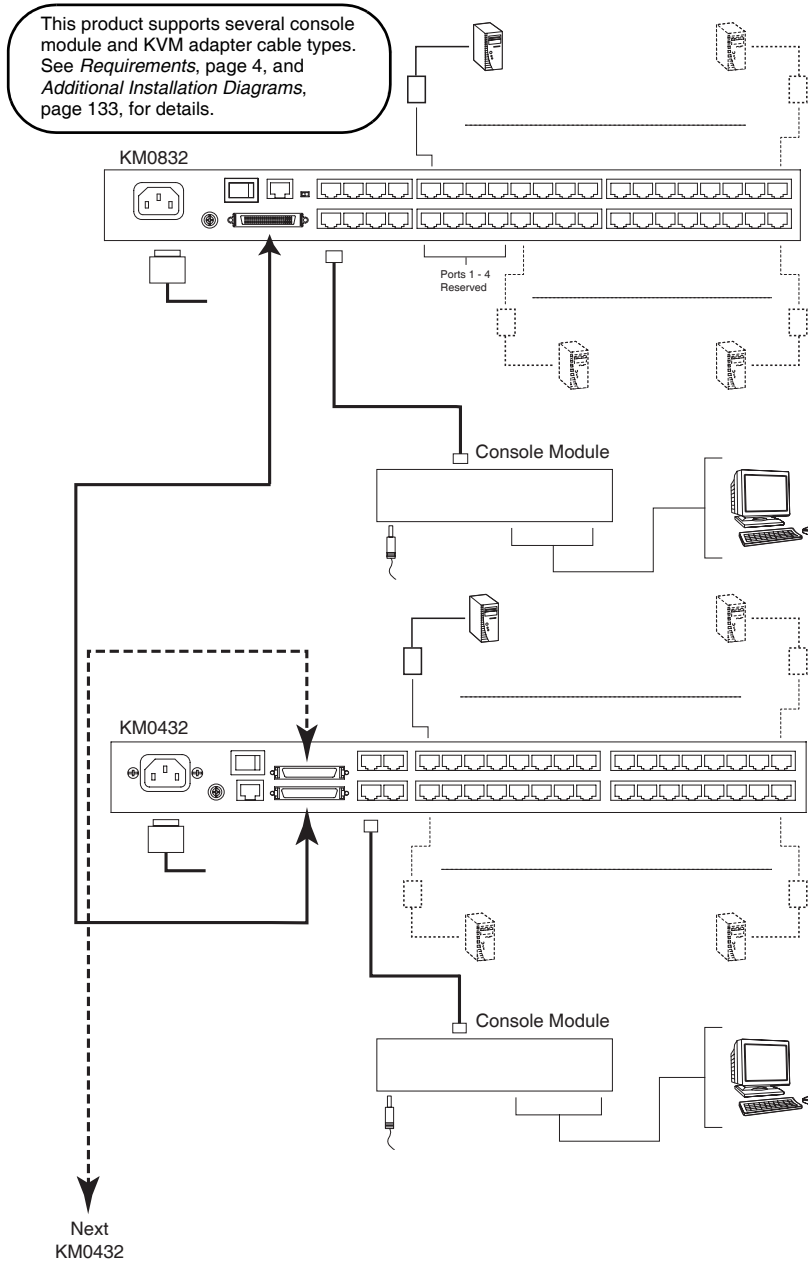
4. Power on the installation according to the following procedure:

   a) Power on the first-level KVM switch (KM0832). Wait one minute for the KVM switch to ascertain its position. (The KM0832 does not have a station ID because it always occupies the first station position.)

   b) Power on each KVM switch on the installation in turn (second station, then third station, etc.). In each case, wait for the position to be ascertained and displayed on the current station ID before powering on the next station. (The ID for the second-level KVM switch is **02**, the ID for the third-level KVM switch is **03**, etc.)

   c) After all the KVM switches are powered on, power on the computers.

## Daisy-chained Installation Diagram


This product supports several console module and KVM adapter cable types. See *Requirements*, page 4, and *Additional Installation Diagrams*, page 133, for details.
KM0832
Ports 1 - 4 Reserved
Console Module
KM0432
Console Module
Next KM0432

## Network Installation

You can configure most KM0832 settings from within a Web browser. To do so, you need to install the KM0832 on a local network.

To install the KM0832 on a local network:

Connect one end of a Cat 5 cable to a network access port and the other end to the CONFIGURATION port on the rear panel of the KM0832.

**Note:** It is not necessary to connect cascaded KVM switches to the network. Cascaded KVM switches are managed through the KM0832 Administrator Utility of the first-level KVM switch.

## Topology Considerations

The use of RJ-45 KVM port connectors, combined with Auto Signal Compensation (ASC), allow signals to travel up to 300 meters (1000 feet) and still maintain reliability and high video resolution. This allows the KM0832 installation to take advantage of the internal Cat 5e and Cat 6 wiring built-in to most modern commercial buildings.

Since the data signals are not transmitted in packets, the transmission cannot go through network hubs or switches. Passive components such as patch panels, keystone jacks, patch cables, etc. can be used to channel the traffic, instead.

# Chapter 3
# Basic Operation

## Hot Plugging

The KM0832 supports *hot plugging* – components can be removed and added back into the installation by unplugging their cables from the ports without the need to shut down the KVM switch. In order for hot plugging to work properly, however, the procedures described below must be followed:

### Switching Daisy-chained KVM Switch Positions

You can switch the position of daisy-chained KM0432 or KM0216 by simply unplugging from the old master KVM switch and plugging into a new one.

### Switching Cascaded KVM Switch Positions

You can switch the position of cascaded KM0832 by simply unplugging from the old parent KVM switch and plugging into a new one. The station names and port notes are automatically synchronized with the new position in the installation.

Cascaded non-KM0832 also can be hot plugged; however, port notes are not automatically synchronized. You will need to manually update port notes after changing the position of either cascaded non-KM0832 or attached computers.

### Hot Plugging User Ports

The keyboard, monitor, and mouse all can be hot plugged. If you experience a problem after you plug in a new mouse, do a system reset by pressing the reset button on the KM0832's front panel (see page 6 for details). If this doesn't resolve the problem, restart the computers that have the problem.

## Powering Off and Restarting

Powering off the KM0832 does not affect the computers attached to it. When you restart the KM0832, you will regain control immediately. To replace a KM0832, simply power it down, unplug the cables, plug them into the new KVM switch, and power the new KVM switch on.

**Note:** If any of the computers behave strangely after powering off and restarting, or changing a KVM switch, simply restart the computer.

## Port Selection

Port selection is accomplished either by means of the KM0832's OSD or by entering Hotkey combinations from the keyboard. OSD operation is discussed in detail in Chapter 5; hotkey port selection is discussed in Chapter 6.

Although hotkeys are handy for a single level installation, we strongly recommend you use the more powerful and versatile OSD – especially for cascaded and daisy-chained installations.

# Chapter 4
# Administrator Utility

## Overview

The KM0832 Administrator Utility enables network administrators to securely manage the KM0832 Matrix KVM Switch from anywhere in the world at anytime. Super administrators can manage users and groups, control port access, upgrade firmware versions, and perform many other administrative functions using the intuitive and easy-to-use menus and icons. The KM0832 Administrator Utility is browser-based and does not require any software to be installed on either client computers or servers.

The KM0832 Administrator Utility offers simultaneous access for up to 16 administrators and users. Up to seven users at a time can configure settings in the KM0832, while one user at a time can configure settings in daisy-chained KM0432 or KM0216. Security is maintained by a powerful combination of user password authentication, three-level user access control, and port restrictions. These ensure that unauthorized users cannot gain control of your mission-critical servers.

The KM0832 Administrator Utility's integrated tree view provides seamless navigation of daisy-chained and cascaded KVM switches. Root station configurations are automatically synchronized with all cascaded KM0832 Matrix KVM Switches.

Most features of the KM0832 Administrator Utility are also available from the text-based OSD. Changes made in the KM0832 Administrator Utility are reflected in the text-based OSD and vice-versa.

This chapter describes how to configure the KM0832, set up user and group accounts, configure KVM ports, upgrade firmware, and perform other administrative functions.

## Setting the IP Address

You can use a Web browser, the IP Installer, or the OSD to configure the KM0832 for deployment on your local network. Or, you can assign an IP address from the command line. To use a Web browser to configure the KM0832 you will need: (1) a computer equipped with a Web browser, (2) an Ethernet hub with at least 2 ports, and (3) 2 Cat 5 cables.

To configure the network settings via a Web browser:

1. Plug one end of a Cat 5 cable into the Ethernet hub and the other end into the CONFIGURATION port on the rear panel of the KM0832.
2. Plug one end of a Cat 5 cable into the Ethernet hub and the other end into the network adapter of a computer equipped with a Web browser.
3. Make sure that the computer's IP address lies within the same subunit as that of the KM0832. (The default IP address for the KM0832 is *192.168.0.10*.) Set the IP address for the computer's network adapter to 192.168.0.XXX, where *XXX* represents any value from 1–254 (except 10 and 254, which are reserved for the KM0832). (See *Factory Default Settings*, page 132, for a list of the KM0832's default network settings.)

   **Note:** If you are using a proxy server, you might need to modify your computer's proxy server settings before accessing the KM0832.

4. Enter *192.168.0.10* in your Web browser's address bar. The KM0832 Login Webpage appears.
5. After logging in, assign an IP address that is appropriate for your local network to the KM0832. (See *Network Configuration*, page 42).
6. After logging out, restore your computer's network adapter settings back to their original values.

To configure the network settings via the IP Installer:

Go to the ATEN homepage and select the Webpage that is specific for the KM0832. From there you can download the IP Installer along with instructions on how to use it to assign an IP address to the KM0832.

To configure the network settings from within the OSD:

1. From a KVM console, open the OSD. Navigate to the IP ADDRESS SETTING screen (see *SET NETWORK*, page 113).
2. Follow the instructions on page 113 of this user manual to manually set the IP address or to view the current settings. (If DHCP is enabled, you will not be able to view the IP address.)

To assign an IP address from the command line:

1. Power off the KM0832.
2. At the command line, enter the following command:

   `arp -s <IP address> <MAC address>`

   <IP address> is an IP address suitable for the network segment that the KM0832 resides on.

   <MAC address> is the MAC address found on the bottom panel of the KM0832.
3. Power on the KM0832.
4. Within 30 seconds of powering on the KM0832, enter the following command at the command line:

   `ping <IP address>`

   <IP address> is the IP address that you entered in Step 2.

   If you receive a reply, then the KM0832 accepted the IP address. You may now follow the procedure to login (see page 34).

## Logging In

The KM0832 Administrator Utility provides secure, password-protected access to the KM0832. A default super administrator account is provided to login and configure the initial settings:

```
Username: ADMIN
Password: ADMIN
```

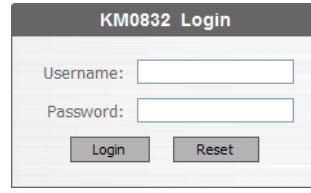
We recommend that you change the password for the default super administrator account. Failure to do so may put your matrix KVM switch installation at risk of unauthorized access. See *Configuring OSD User Settings*, page 72, to change the password. After other user accounts have been added to the KM0832, it is no longer necessary to use the default super administrator account to login. However, this account cannot be deleted and it does not appear in the list of usernames.

To login to the KM0832 Administrator Utility:

1. Enter the IP address of the KM0832 in the address bar of a Web browser and press **[Enter]**.

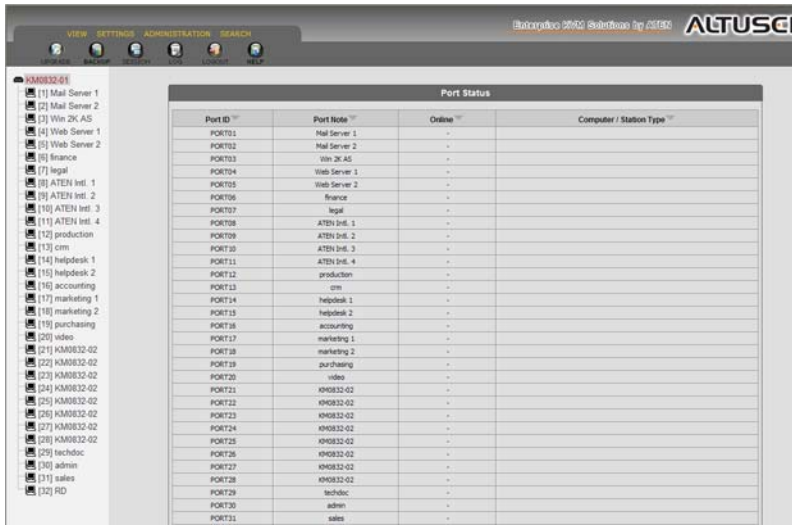
   **Note:** If you do not know the IP address of the KM0832, ask your network administrator.

2. When the **Security Alert** dialog box appears, accept the certificate—it can be trusted. (See *Supported KVM Switches*, page 137, for details.) The **KM0832 Login** Webpage appears.




3. Enter your username and password, and then click **Login**.

Upon successfully logging in, the KM0832 Administrator Utility Main Webpage appears.



# Menus

The menus at the top of the KM0832 Administrator Utility are described in the table below:

| Menu | Description |
|---|---|
| View | Clicking the VIEW menu opens the View Webpage, which allows users to configure the OSD screen settings. |
| Settings | Clicking the SETTINGS menu opens the Settings Webpage. It allows users to change their account passwords. The user also can set the OSD activation keys, time to logout, and screen blanker, as well as turn on and off both the hotkey commands and the beeper, and set the idle timeout. |
| Administration | Clicking the ADMINISTRATION menu opens a pop-up menu. From this menu, administrators and super administrators can manage users, KVM ports, and stations. In addition, super administrators can manage groups, configure the network settings, set the date and time, and view the system information for the KM0832. |
| Search | Clicking the SEARCH menu opens the Search Webpage. All users can input key strings to search for computers and stations in the installation. |

# Icons

The icons at the top of the KM0832 Administrator Utility are described in the table below:

| Icon | Description |
|---|---|
| Upgrade | Clicking the UPGRADE icon brings up the Firmware Upgrade Webpage. The super administrator can use this function to upgrade the firmware version. |
| Backup | Clicking the BACKUP icon opens the Backup and Restore Settings Webpage. It allows the administrator to backup the system configuration to a local computer, or restore the system configuration to the station. |
| Session | Clicking the SESSION icon opens the Active Sessions Webpage. This Webpage allows super administrators to see information about all the users who are currently logged into the KM0832 and provides information about each of their sessions. It also gives super administrators the option of forcing a user logout. |
| Log | Clicking the LOG icon opens the Event Log Webpage, which allows administrators to view all of the events that took place on the KM0832 system. |
| Logout | Clicking the LOGOUT icon closes the user's session. |
| Help | Clicking the HELP icon opens the KM0832 help file. |

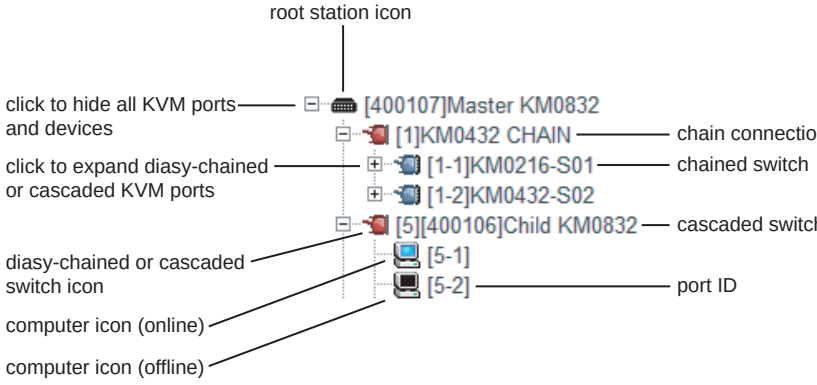
## Tree View Icons

A tree view at the left side of the Main Webpage displays the stations and ports. The KM0832 *root station* icon (at the top of the tree) represents the root node. Under the root station icon are *computer* icons, *chain connector* icons, and *station* icons, which represent the child nodes arranged in descending order.

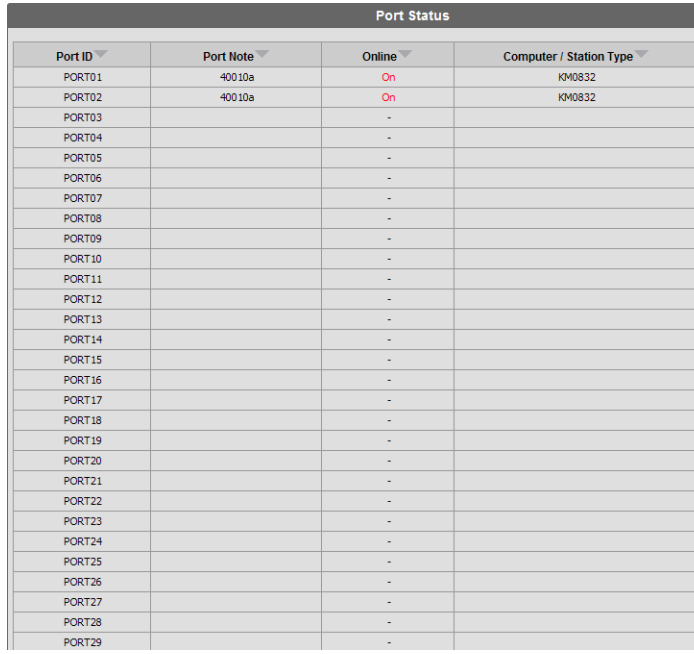
- Clicking on a computer icon opens the Port Management Webpage for that KVM port.
- Clicking on the chain connection icon opens the Station Status Webpage for the daisy-chained station(s) connected to the KM0832.

> **Note:** The Station Status Webpage displays the same information as the Port Status Webpage (see page 39).

- Clicking on a station opens the Port Status Webpage for the cascaded station connected to the KVM port (see page 39).
- Clicking the plus sign (+) next to a chain connector icon expands the KVM ports on that station. The port ID is displayed in brackets. (See *Single Level Installation*, page 97, for an explanation of the port ID.)



# Port Status



Port Status

| Port ID | Port Note | Online | Computer / Station Type |
|---|---|---|---|
| PORT01 | 40010a | On | KM0832 |
| PORT02 | 40010a | On | KM0832 |
| PORT03 | | - | |
| PORT04 | | - | |
| PORT05 | | - | |
| PORT06 | | - | |
| PORT07 | | - | |
| PORT08 | | - | |
| PORT09 | | - | |
| PORT10 | | - | |
| PORT11 | | - | |
| PORT12 | | - | |
| PORT13 | | - | |
| PORT14 | | - | |
| PORT15 | | - | |
| PORT16 | | - | |
| PORT17 | | - | |
| PORT18 | | - | |
| PORT19 | | - | |
| PORT20 | | - | |
| PORT21 | | - | |
| PORT22 | | - | |
| PORT23 | | - | |
| PORT24 | | - | |
| PORT25 | | - | |
| PORT26 | | - | |
| PORT27 | | - | |
| PORT28 | | - | |
| PORT29 | | - | |

After logging in to the KM0832 Administrator Utility, the Port Status Webpage displays by default. (You can display the Port Status Webpage at any time by clicking on the KM0832 station icon in the tree view. You can view the Port Status Webpage for cascaded stations by clicking the switch icon for the station.) Users see only those KVM ports for which they have *full access* and *view only* privileges. Clicking on the arrow at the top of a column sorts information in the column by ascending or descending order.

| Column | Description |
|---|---|
| Port ID | Lists the KVM port number. |
| Port Note | Displays the port note that was assigned to the KVM port (if any). For information about port notes see *Configuring Port Settings*, page 66. |
| Online | Indicates whether the device attached to the KVM port is powered on. |
| Computer/Station Type | Displays information about the cascaded station or KVM adapter cable used to attach the computer to the KVM port. |

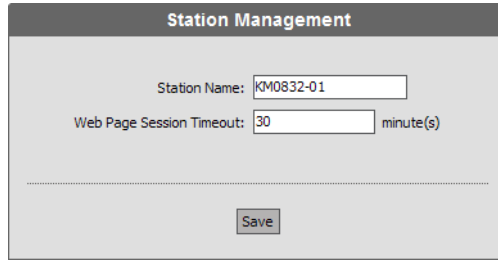
## Naming Stations

To help distinguish one KVM switch from another in cascaded installations, super administrators and administrators can assign unique names to each KM0832.

**Note:** Assigning a name to a station makes it possible to find it later using the search function.

To assign a station name to the KM0832:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click on the target station in the tree view to select it.
3. From the **Administration** menu, choose **Station Management**. The **Station Management** Webpage appears.




4. Type a name in the **Station Name** field. Station names may be up to 15 characters long. Legal characters include: a–z, A–Z, 0–9, space, and hyphen. Enter a unique name for the station in the KVM installation.
5. Click **Save**.

## Setting the Webpage Session Timeout

If the length of time that a user is idle in the KM0832 Administrator Utility exceeds the Webpage Session Timeout setting, the user's session is ended. The valid range for the Webpage Session Timeout is 1–240 minutes. The default is 3 minutes.

To set the Webpage Session Timeout for the KM0832 Administrator Utility:

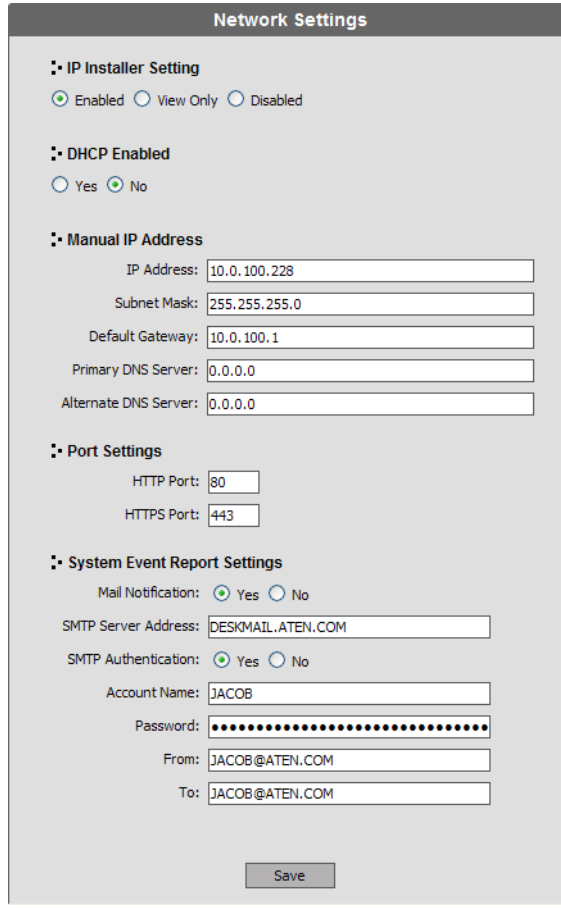
1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. From the **Administration** menu, choose **Station Management**. The **Station Management** Webpage appears.
3. In the **Webpage Session Timeout** field, type the number of minutes to elapse before an inactive user is timed out of the KM0832 Administrator Utility.
4. Click **Save**.

# Network Configuration

Network configuration is a Super Administrator function. After logging in to the KM0832 Administrator Utility, you should configure the network settings. Network settings are configured through the Network Settings Webpage.

To open the Network Settings Webpage:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. From the **Administration** menu, choose **Super Adm Configuration** > **Set Network**. The **Network Settings** Webpage appears.



## IP Installer Setting

You can use the IP Installer to view and change network settings for the KM0832. The IP Installer can be downloaded from our Website.

- Click **Enabled** to allow the IP Installer to be used to change the IP address, subnet mask, and gateway for the KM0832.
- Click **View Only** to allow the IP Installer to be used to view the IP address, subnet mask, and gateway for the KM0832.
- Click **Disabled** to restrict the IP Installer from being used to view or change the network settings for the KM0832.

## IP Address

You can either manually enter a static IP address or use a DHCP server to dynamically assign one. If you enable a DHCP server to assign an IP address to the KM0832, we recommend that you configure the KM0832 to send an e-mail notification if the IP address changes. See *System Event Reports*, page 44.

To use a DHCP server to assign an IP address:

Under **DHCP Enabled**, click **Yes**.

To manually assign an IP address:

1. Under **DHCP Enabled**, click **No**.
2. Under **Manual IP Address**, enter the IP address, subnet mask, default gateway, and primary DNS server. You also can enter an alternate DNS server; however, it is not required.

## Port Settings

Enter the network ports that the KM0832 will use to transfer Webpages and communicate with client programs. Typically, port 80 is used for Hyper Text Transfer Protocol (HTTP) communications, while port 443 is used for HTTP over Secure Socket Layer (HTTPS). Failure to assign a port for each field will cause the KM0832 Administrator Utility to function incorrectly.

## System Event Reports

The KM0832 can be configured to send an e-mail notification whenever the DHCP server assigns a new IP address to the KM0832. Enable the Mail Notification feature and specify the Simple Mail Transfer Protocol (SMTP) server address, information for a valid e-mail account on the server, and the e-mail address of the person to whom the message should be sent.

To enable system event reports:

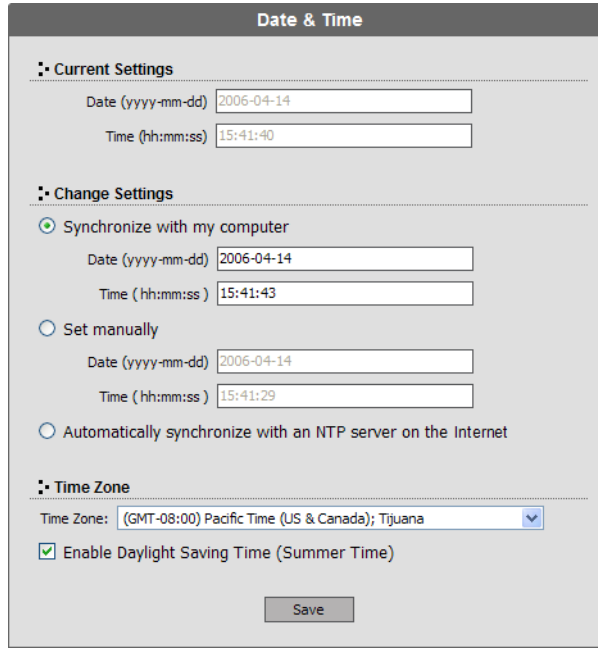
1. Under **System Event Report Settings**, click **Yes** to enable Mail Notification.
2. Enter the address of the SMTP server.
3. If the SMTP server requires authentication, click **Yes** to enable SMTP Authentication. If not, skip to Step 6.
4. In the **Account Name** field, enter the username for a valid e-mail account on the SMTP server entered in Step 2.
5. In the **Password** field, enter the password for the e-mail account in Step 4.
6. In the **From** field, enter the e-mail address for the e-mail account in Step 4.
7. In the **To** field, enter the e-mail address of the person to whom the notification message should be sent.
8. Click **Save**.

## Setting the Date and Time

Super administrators can set the date and time of the KM0832, which enables the System Log, Active Sessions, and System Information Webpages to maintain accurate time-sensitive data.

To set the date and time:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. From the **Administration** menu, choose **Super Adm Configuration** > **Date & Time**. The **Date & Time** Webpage appears.




The current date and time of the KM0832 are shown at the top of the Webpage.

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3. Under **System Date & Time**, select one of the following three options to set the date and time.
   - Synchronize with my computer: Select this option to synchronize the date and time of the KM0832 with that of the computer that you are using to access it.
   - Set manually: Select this option to manually enter the date and time. You must enter the date and time in the following way:
     - Date: Enter the date in Arabic numerals, year first, then the month, followed by the day. The year must carry four digit places, while the month and day each must carry two digit places. The year, month, and day each must be separated by a hyphen. For example, December 5th, 2005, should be written *2005-12-05*.
     - Time: Use 24-hour notation to enter the time as *hours:minutes:seconds.* For example, three o'clock in the afternoon would be written *15:00:00*.
   - Automatically synchronize with an NTP server on the Internet: Select this option to synchronize the date and time of the KM0832 with that of a Network Time Protocol (NTP) server on the Internet. To use this feature you will need to open UDP port 123 in your firewall.
4. From the **Time Zone** drop-down list, select the time zone in which the KM0832 is located.
5. Select **Daylight Saving Time (Summer Time)** if it is used in the region in which the KM0832 is located.
6. Click **Save**. Your settings are saved and the system date and time are updated.

## Group Management

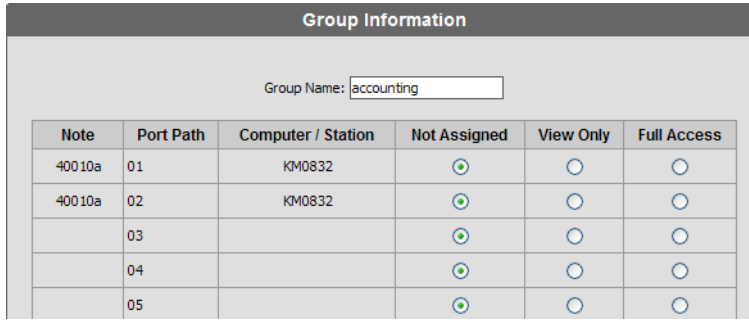
Super administrators can create, modify, and delete up to 255 groups in the KM0832. (An additional default group cannot be modified or deleted.) Grouping users together simplifies KVM port management by enabling actions to be performed that affect a whole group of users, rather than only one. (You can still use the User Management Webpage to change individual user account settings. See *User Management*, page 53.)

All group management operations start from the Group Management Webpage. It shows all groups that have been created on the KM0832 and provides options for creating new groups and modifying or deleting existing groups.

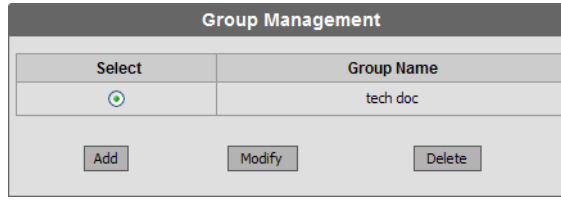
## Adding Groups

To add a new group:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. From the **Administration** menu, choose **Account Management** > **Group Management**. If no groups have been created the **No Local Groups** Webpage appears. If at least one group has been created already the **Group Management** Webpage appears. Click **Add** and skip to Step 4.
3. Click **New**. The **Group Information** Webpage appears.



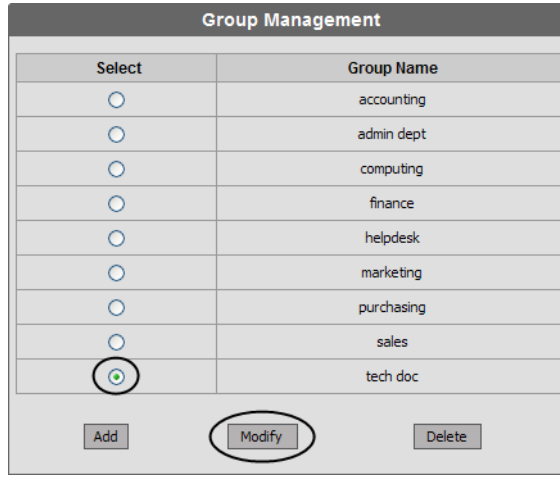

4. Type a name in the **Group Name** field. Group names may be up to 15 characters long. Legal characters include: a–z, A–Z, 0–9, space, hyphen, square brackets, parentheses, and period.
5. If you want to assign KVM port access rights to the group, see *Managing Port Access Rights for Groups*, page 51.
6. Click **Save**. The new group is added to the **Group Management** Webpage.



## Modifying Groups

To edit a group account:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Open the **Group Management** Webpage.



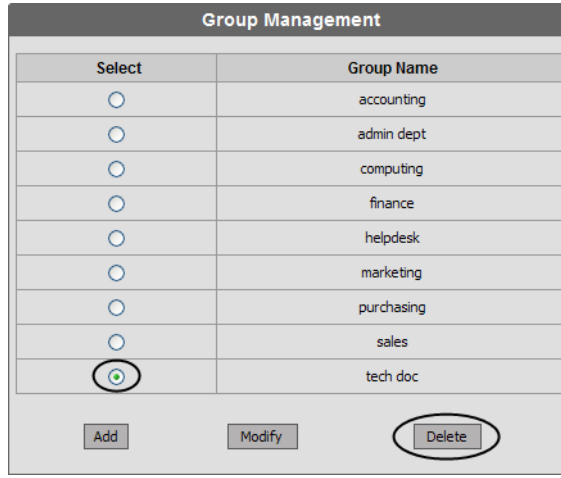

3. Select a group name and click **Modify**. The **Group Information** Webpage appears.
4. Edit the group account settings, and then click **Save**. The **Group Management** Webpage reflects the changes you made to the group name.

## Deleting Groups

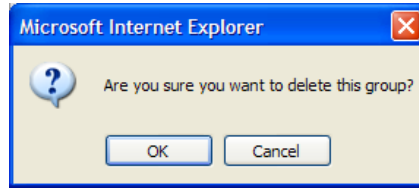
When you delete a group all users that are members of the group are also deleted. If you do not want to delete certain users in the group, first change the group membership of those users, and then delete the group.

To delete a group:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Open the **Group Management** Webpage.




3. Select a group name and click **Delete**. The following dialog box appears:




4. Click **OK** to delete the group. The group name is removed from the **Group Management** Webpage and all users in the group are deleted.

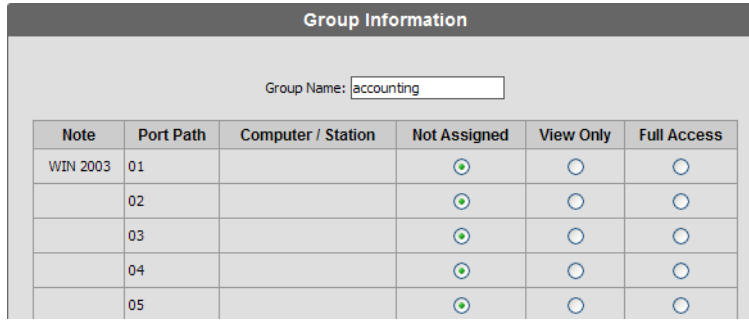
## Managing Port Access Rights for Groups

Super administrators can manage KVM port access rights for groups from the Group Information Webpage.

**Note:** You do not need to assign access rights for a group to any KVM port that cascades a KM0832. However, you must assign access rights to KVM ports that cascade non-KM0832 KVM switches. When you assign access rights to a KVM port that cascades a non-KM0832 KVM switch or Matrix Plus KVM adapter cable, the access rights apply to all KVM adapter cables in the cascade. This also applies to daisy-chained KM0216 and KM0432 switches.

To manage KVM port access rights for a group:

1. In the **Group Management** Webpage, select a group name from the list, and then click **Modify**. The **Group Information** Webpage appears. (If you have already completed this step, skip to Step 2.)




The **Group Information** Webpage lists all KVM ports in the installation. KVM ports, whether on the root station, daisy-chained, or cascaded, are listed in order of position in the installation.

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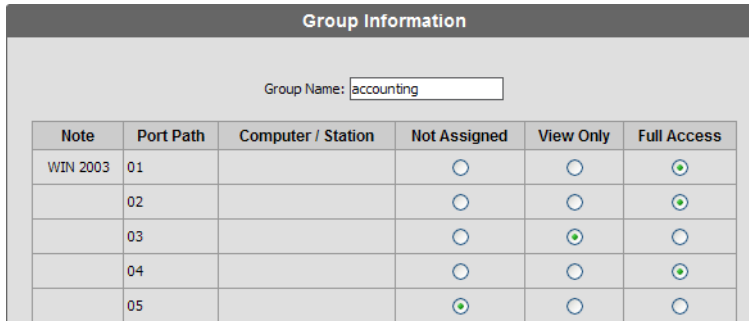
2. Click to apply the type of access rights you wish to assign for the group to each KVM port.




3. Click **Save** to store your changes.
4. To exit without saving changes, click any other menu or icon.

## User Management

Up to 1023 user accounts can be added to the KM0832 with no restriction on the number of any user type. Each user requires a unique user account to access the KM0832 through a KVM console or through the KM0832 Administrator Utility. Super administrators can add, modify, and delete all user types, while administrators can add, modify, and delete only other administrators and users. (An additional default super administrator account cannot be modified or deleted.) Super administrators also can log in to the KM0832 Administrator Utility when all normal sessions are in use and close the session of another user.

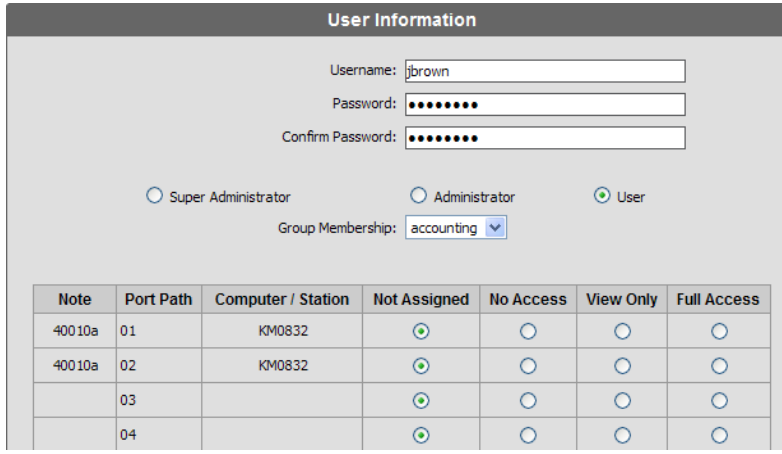
The KM0832 requires each user to be added to a group; therefore, we suggest that you create groups before users. If you do not wish to create groups you may add users to the default group account. However, the default group account cannot be used to grant KVM port access to group members. In this case, you will need to individually add users to the KVM ports.

The User Management Webpage is similar to the Group Management Webpage. It shows all users that have been created on the KM0832 and their individual group memberships. It also provides options for creating new users and modifying or deleting existing users.

## Adding Users

To add a user account:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. From the **Administration** menu, choose **Account Management** > **User Management**. If no users have been created the **No Local Users** Webpage appears. If at least one user has been created the **User Management** Webpage appears. Click **Add** and skip to Step 4.
3. Click **New**. The **User Information** Webpage appears.




4. Type a name in the **Username** field. Usernames may be up to 15 characters long. Legal characters include: a–z, A–Z, 0–9, space, hyphen, square brackets, parentheses, and period.
5. Enter a password and then reenter the password to confirm it. Passwords may be up to 15 characters long. Legal characters include: a–z, A–Z, 0–9, space, hyphen, square brackets, parentheses, and period. This field may not be left blank.

6. Select an account type for the user. The following table shows the permissions for each account type. (Permissions apply only to the local station. For permissions in cascaded and daisy-chained stations, see *Cascaded Installations*, page 66.)

| Permission | User | Administrator | Super Administrator |
|---|---|---|---|
| Access KVM ports* | • | • | • |
| Configure personal profile settings | • | • | • |
| Search | • | • | • |
| View online Help | • | • | • |
| Manage user/ administrator accounts | | • | • |
| Manage super administrator accounts | | | • |
| Manage stations | | • | • |
| Manage KVM ports | | • | • |
| View/clear log file | | • | • |
| Backup/restore settings | | • | • |
| Manage group accounts | | | • |
| Configure network settings | | | • |
| Set date and time | | | • |
| View system information | | | • |
| Upgrade firmware | | | • |
| Invoke Broadcast mode | | | • |

***** Super administrators and administrators have full access to all KVM ports; however, users must be granted permission to access each KVM port.

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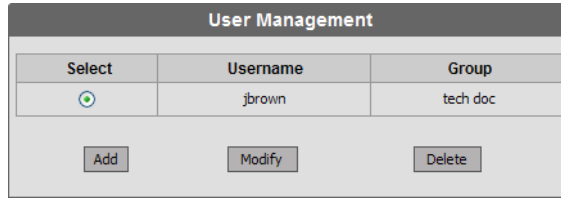
7. Select a group membership for the user. If you do not wish to create a group membership for the user, then select the default group account.

**Note:** Each user account can have only one group membership.

8. If you want to assign KVM port access rights to the user, see *Managing Port Access Rights for Users*, page 59.

9. Click **Save**. The new user is added to the **User Management** Webpage.



## Modifying Users

To edit a user account:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Open the **User Management** Webpage.

3. Select a username and click **Modify**. The **User Information** Webpage appears.
4. Edit the user account settings. (Leave the password fields blank to keep the same password.)

> **Note:** If you modify the user's password, account type, or group membership, the user's session will be ended automatically.

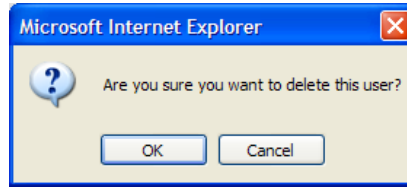
5. Click **Save**. The user account is updated.

## Deleting Users

To delete a user account:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Open the **User Management** Webpage.

3. Select a username and click **Delete**. The following dialog box appears:




4. Click **OK** to delete the username. The username is removed from the **User Management** Webpage.

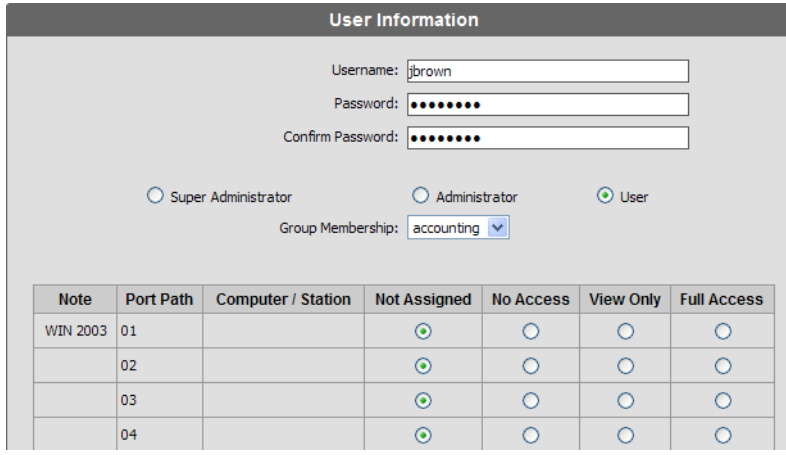
## Managing Port Access Rights for Users

Super Administrators and Administrators can manage port access rights for Users from the User Information Webpage. (You do not need to assign port access rights for Super Administrators and Administrators. They have access to all KVM ports in the KM0832 installation, including those in cascaded KVM switches.)

**Note:** You do not need to assign access rights for a user to any KVM port that cascades a KM0832. However, you must assign access rights to KVM ports that cascade non-KM0832 KVM switches. When you assign access rights to a KVM port that cascades a non-KM0832 KVM switch or Matrix Plus KVM adapter cable, the access rights apply to all KVM adapter cables in the cascade. This also applies to daisy-chained KM0216 and KM0432 switches.

To manage KVM port access rights for a user:

1. In the **User Management** Webpage, select a username from the list, and then click **Modify**. The **User Information** Webpage appears.




The **User Information** Webpage lists all KVM ports in the installation. KVM ports, whether on the root station, daisy-chained, or cascaded, are listed in order of position in the installation.

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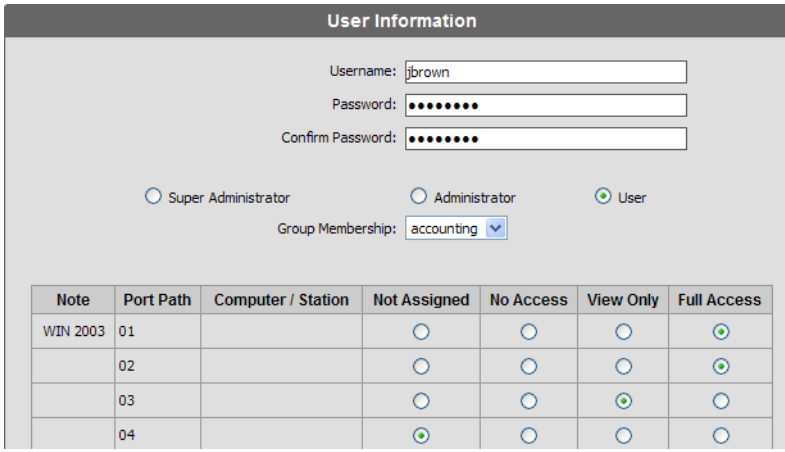
2. Click to apply the type of access rights you wish to assign for the user to each KVM port.




3. Click **Save** to store your changes.
4. To exit without saving changes, click any other menu or icon.

# Port Management

KM0832 port access rights for users and groups are set on a port-by-port basis, giving administrators a high degree of control over which KVM ports users can access and how they access the KVM ports. To enable users to access KVM ports, you must first configure the user access rights for each KVM port. By default, all super administrators and administrators have full access to all KVM ports.

**Note:** Adding users to groups streamlines KVM port configuration by allowing you to assign port access to whole groups of users at one time.

In this section we will discuss how to:

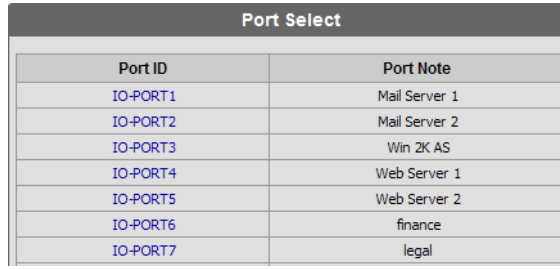
- Set port access rights for users and groups
- Configure KVM port settings and assign names to KVM ports
- Restore KVM port defaults

## Accessing Ports

All KVM ports in the station are listed on the Port Select Webpage.

To open the Port Select Webpage:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. In the tree view, click on a station to select it.
3. From the **Administration** menu, choose **Port Management**. The **Port Select** Webpage for that station appears.



The Port Select Webpage is divided into two columns. Port IDs, or port numbers, are listed in the column on the left in ascending order. Click the port ID to access the Port Management Webpage for that KVM port. If a KVM port has been named, the name appears to the right of the port ID in the Port Note column.

## Managing Port Access

Each KVM port has an individual Port Management Webpage that is used to set port access rights, assign port names and configure other port settings. This also is true for KVM ports in cascaded child stations. (To add users to ports directly from the User Information page, see *Managing Port Access Rights for Users*, page 59. To add groups to ports directly from the Group Information page, see *Managing Port Access Rights for Groups*, page 51.)

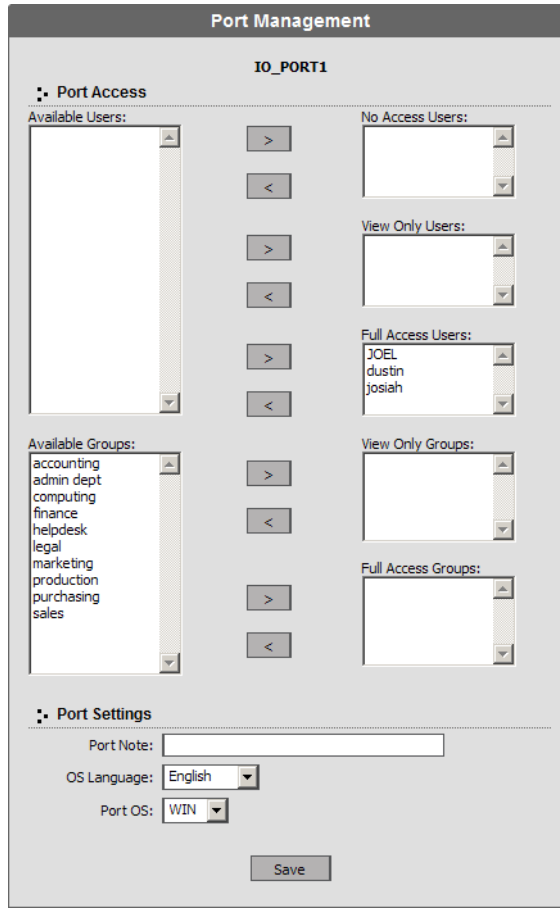
To open the Port Management Webpage for a KVM port:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. In the KM0832 tree (on the left side of the Main Webpage), click on a computer icon. Each computer icon corresponds to a KM0832 KVM port. The **Port Management** Webpage for that KVM port appears. (See page 38 for more information about using the computer icons.)

   -or-

   Open the **Port Select** Webpage. Go to step 3.

3. In the Port ID column, click on a port ID to open the **Port Management** Webpage for that KVM port. The **Port Management** Webpage appears.




**Note:** For daisy-chained KM0216 and KM0432, only the *Port Settings* area of the webpage displays. Daisy-chained KM0216 and KM0432 cannot have their ports managed individually. Access to the entire chain is controlled under *Group Management* (see page 47) and *User Management* (see page 53).

The Port Access area of the Port Management Webpage is used to manage port access rights for users and groups. The boxes on the left side of the Webpage show all users and groups that have been created. The boxes on the right side of the Webpage govern port access rights.

In the middle of the Webpage are five sets of arrows. Each set contains two arrows, one facing leftward (<) and the other facing rightward (>), which correspond to the boxes immediately to the left and right. Arrows are used to move users and groups from the boxes on the left into the boxes on the right and vice versa. These boxes are discussed in the following table.

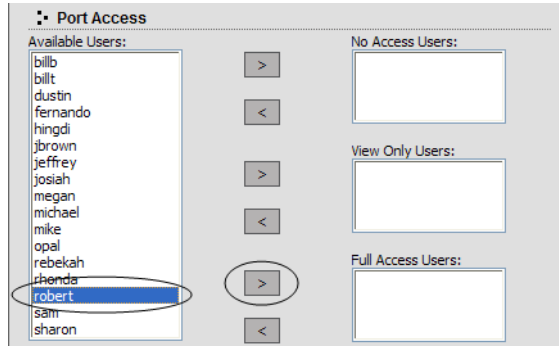
| Box | Description |
|---|---|
| Available Users | Lists users who have not been assigned access rights for the KVM port. |
| Available Groups | Lists groups that have not been assigned access rights for the KVM port. |
| No Access Users | Lists users who are restricted from access to the KVM port. If a user listed in this box is a member of a group that has permission to access the KVM port, placing the user in this box restricts the user from accessing the KVM port. |
| View Only Users | Lists users who are permitted to view video from the KVM port. |
| Full Access Users | Lists users who are permitted both to view video from the KVM port and to control it. If the KVM port cascades a KVM switch, the user will not be able to access KVM ports on that station until granted access rights to the individual KVM ports. |
| View Only Groups | Lists groups that are permitted to view video from the KVM port. |
| Full Access Groups | Lists groups that are permitted both to view video from the KVM port and to control it. If the KVM port cascades a KVM switch, the group will not be able to access the KVM ports of that station until granted access rights to the individual KVM ports. |

**Note:** 1. You cannot add more than 32 users and 32 groups to a KVM port. If you need to add more than 32 users to a KVM port, first add the users to groups and then add those groups to the KVM port.

2. If a user is granted both user and group access rights to the same KVM port, the user access rights will be applied and not those of the group.

To grant port access rights to users or groups:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Open the **Port Management** Webpage for the KVM port where you wish to grant access rights.

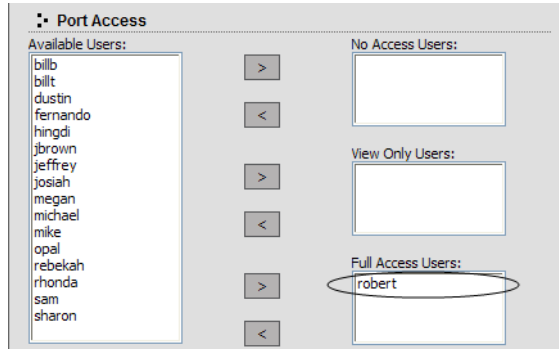



3. In the **Available Users** box, click on a username to highlight it.

   -or-

   In the **Available Groups** box, click on a group name to highlight it.

   Click the appropriate rightward facing arrow (>) to move the selected user (or group) to the box on the right that corresponds to the access rights that you wish to grant to the user (or group). The user (or group) appears in the access rights box.




*(Continues on next page.)*

*(Continued from previous page.)*

Repeat Steps 2 and 3 until you have assigned port access rights (or restrictions) for all users and groups.

If you make a mistake by adding a user or group to the wrong access rights box, simply highlight the username (or group name) again and then click the corresponding leftward facing arrow. The selected user (or group) is removed from the box and put back into its former position.

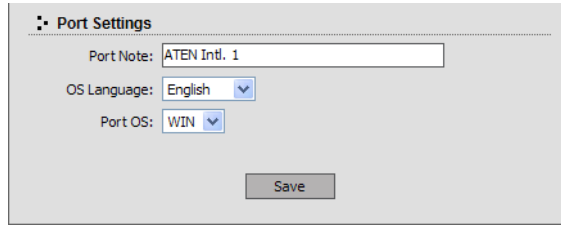
4. Click **Save**. The selected users (or groups) are given the permissions that were assigned in the last step.

## Cascaded Installations

Super administrators and administrators have full access to all KVM ports in the installation. You must assign access rights to KVM ports for all other users and groups. You do not need to assign access rights for users and groups to any KVM port that cascades a KM0832. However, you must assign access rights to KVM ports that cascade non-KM0832 KVM switches. When you assign access rights to a KVM port that cascades a Matrix Plus KVM adapter cable, the access rights apply to all KVM adapter cables in the chain.

## Configuring Port Settings

Before you configure port settings, first verify that the KVM adapter cable for the KVM port you wish to configure is connected to the correct KVM port on the back panel of the KM0832. The fields in the lower section of the Port Management Webpage are described in the table on the following page.



| Field | Description |
|---|---|
| Port Note | Type a name in the **Port Note** field. Port notes may be up to 15 characters long. Legal characters include: a–z, A–Z, 0–9, space, and hyphen. Enter a unique note for the port that will differentiate it from all other ports in the KVM installation. The port note will appear on the Port Status and Port Select Webpages, in the KM0832 tree next to the computer icon, and in the OSD.<br>**Note:** Adding spaces to the port note will cause it to display on multiple lines in the tree in some Web browsers.<br>◆ If the KVM port cascades a KM0832, the port note is replaced by the station name of the cascaded KM0832. To modify station names, see *Naming Stations*, page 40.<br>◆ If a non-KM0832 KVM switch or a computer is connected to the KVM port by a KVM adapter cable, the port note can be changed. If the position of the KVM switch or the computer in the KVM installation ever changes, the port note for the new KVM port will automatically change to the port note stored in the KVM adapter cable. However, the port note for the old KVM port must be erased manually.<br>◆ If nothing is connected to the KVM port, the port note can be changed. However, if a cascaded KVM switch or KVM adapter cable is attached to the port later, the port note will change to the port note stored in the KVM adapter cable. |
| Keyboard Layout (OS Language) | Set the layout of the keyboard(s) that will be used to access the computer attached to this port. The KM0832 supports 3 keyboard layouts: U.S. English, Japanese, and French. Configuring this setting correctly will ensure that characters are entered correctly and that the special keys on Japanese keyboards work correctly (if applicable). |
| Keyboard (Port OS) | Set the model of the keyboard(s) that will be used to access the computer attached to this port. The KM0832 supports 3 keyboard models: IBM PC (101/104 keys), Apple, and Sun. Configuring this setting correctly will ensure that the special keys on Apple and Sun keyboards work correctly (if applicable). |

## Restoring KVM Port Defaults

Clicking the Restore Defaults button at the bottom of the Port Select Webpage restores KVM port defaults. When restoring KVM port defaults, port access rights are revoked for users and groups, port notes and personal view shortcuts are removed, and the Port Operating System and Port Language settings are restored to the original factory default settings (*Factory Default Settings*, page 132).

In cascaded installations, you can restore KVM port defaults for up to 2 levels of KVM switches at a time. If you want to restore KVM port defaults for more than two levels of KVM switches, repeat this procedure for each third-level KVM switch for which you wish to restore KVM port defaults. KVM port defaults will be restored for any fourth-level KVM switches at the same time.

In daisy-chained installations, you can restore KVM port defaults one station at a time.

To restore KVM port defaults:

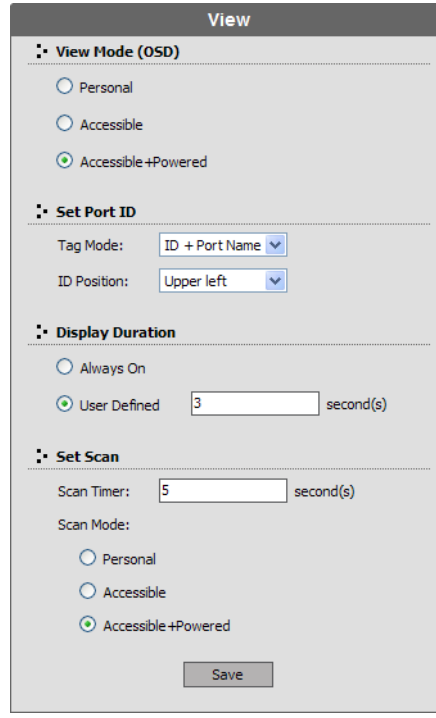
1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. In the tree view, click on the station for which you want to restore KVM port defaults to select it.
3. From the **Administration** menu, choose **Port Management**. The **Port Select** Webpage for that station appears.
4. Click **Restore Defaults**. The KVM port defaults are restored for the selected station (and one additional level of cascaded KVM switches, if applicable).

## Setting the OSD View

After you create accounts for users, those users can login to the KM0832 Administrator Utility. From there, they can set the OSD view settings for their accounts. This includes selecting the KVM ports that will appear in the OSD port list; the type, position and duration of the port ID display; and the scan mode and scan duration. (The OSD is discussed in Chapter 5.)

To open the View Webpage:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **View** menu. The **View** Webpage appears.



## View Mode

Many of the OSD functions only operate on the computers that are currently listed (displayed) on the OSD main screen. Use this function to broaden or narrow the scope of KVM ports that are listed. The submenu choices and their meanings are given in the table below:

| Choice | Meaning |
|---|---|
| Personal | The OSD lists the KVM ports that the user has set as personal. See *SET PERSONAL VIEW* on page 102. |
| Accessible | The OSD lists only those KVM ports that the user is permitted to access. See *Managing Port Access* on page 62. |
| Accessible + Powered | The OSD lists only those KVM ports that the user is permitted to access and that have their attached computers powered on. |

## Set Port ID

When a user switches KVM ports from the OSD, a port ID is shown. The table below explains the choices:

| Choice | Meaning |
|---|---|
| Tag Mode | Selects how the port ID is displayed: the port number alone (**ID**); the port note alone (**Port Name**); or the port number plus the port note (**ID + Port Name**). The default is ID + Port Name. |
| ID Position | Allows you to position where the port ID appears on the monitor. The default is the upper left corner, but you can make it appear anywhere on the screen. If the ID Position is Other, it cannot be changed. |

## Display Duration

Display duration determines the length of time that the port ID displays on the screen after a KVM port change. The table below explains the choices:

| Choice | Meaning |
|---|---|
| Always On | Displays the port ID at all times. |
| User Defined | Lets you select the amount of time (from 1–240 seconds). The default is 3 seconds. A value of 0 (zero) disables this function. |

## Set Scan

Select the KVM ports that are viewed under Auto Scan mode and the duration of time that they receive the KVM focus.

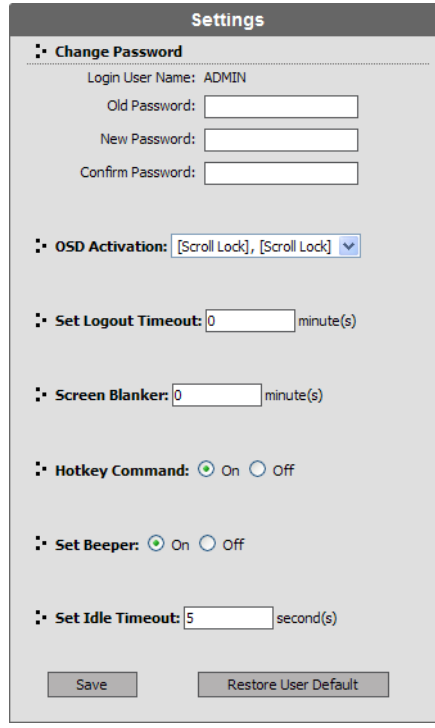
| Setting | Function |
|---|---|
| Scan Timer | Determines how long the KVM focus dwells on each KVM port as it cycles through the selected KVM ports in Auto Scan mode (see *F7 SCAN*, page 116). Enter a value from 0–240 seconds. The default is 5 seconds. Entering 0 will cause the KM0832 to automatically enter Skip mode when Auto Scan mode is invoked. |
| Scan Mode | Selects which computers will be accessed under Auto Scan mode (see *F7 SCAN*, page 116). Choices are:<br>**Personal**—only those KVM ports that the user has set as personal. See *SET PERSONAL VIEW* on page 102.<br>**Accessible**—only those KVM ports that the user is permitted to access. See *Managing Port Access* on page 62.<br>**Accessible + Powered**—only those KVM ports that the user is permitted to access and that have their attached computers powered on.<br>The default is Accessible + Powered**.** |

# Configuring OSD User Settings

This function allows the user to change the account password and set up a unique working environment. A separate profile for each user is stored by the OSD and is activated according to the username that is provided during login.

To open the Settings Webpage:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Settings** menu. The **Settings** Webpage appears. (The Settings Webpage fields are described in the table on the following page.)



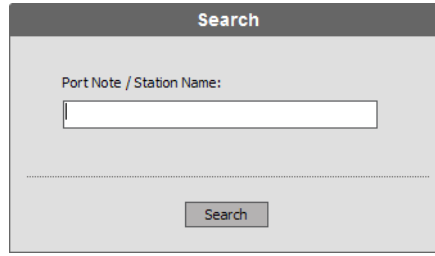
| Setting | Function |
|---|---|
| Change Password | Enter the old account password. Enter a new password, and then reenter the password to confirm it. Blank passwords are permitted. Or, do not enter anything to leave the password unchanged. |
| OSD Activation | Selects which Hotkey activates the OSD function:<br>[Scroll Lock] [Scroll Lock] or [Ctrl] [Ctrl].<br>Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination. |
| Set Logout Timeout | This function allows you to specify the number of minutes to elapse before an inactive user is timed out of the OSD. If there is no input from the user for the specified amount of time, the user will be logged out automatically. Enter a value from 1–180 minutes, then click **Save**. A value of 0 disables this function. The default is 0 (disabled). |
| Screen Blanker | If there is no input from the KVM console for the amount of time set with this function, the screen is blanked. Enter a value from 1–30 minutes, then click **Save**. A value of 0 disables this function. The default is 0 (disabled). |
| Hotkey Command | Enables / Disables the Hotkey Command function in case a conflict with programs running on the computers occurs. The default is enabled. |
| Set Beeper | When set to ON, the beeper sounds whenever the KVM port is switched, when activating the Auto Scan mode (see page 116), or when an invalid entry is made on an OSD menu. The default is ON. |
| Set Idle Timeout | If there is no input from the KVM console accessing a particular KVM port for the amount of time set with this function, the KVM port is released, allowing it to be accessed by the other KVM consoles.<br>To set the Idle Timeout value, enter a value from 0–240 seconds, then click **Save**.<br>A value of 0 disables the Idle Timeout function. The default value is 5 seconds. |
| Restore User Default | Restores the original factory default settings for *View Mode (OSD), Set Port ID, Display Duration, Set Scan, OSD Activation, Set Logout Timeout, Screen Blanker, Hotkey Command, Set Beeper,* and *Set Idle Timeout*. |

## Searching for Ports and Stations

You can search for KVM ports and cascaded stations in the KVM installation by typing all (or part) of the port or station name.

To search for a KVM port:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Search** menu. The **Search** Webpage opens.




3. Type a port note or station name in the **Port Note/Station Name** field. Legal characters include: a–z, A–Z, 0–9, space, and hyphen. If you do not enter any characters, all KVM ports in the installation will be returned.
4. Click **Search**. All entries that match or contain the search term(s) appear in a list.

# Upgrading Firmware

Super administrators can upgrade firmware for KM0832 Matrix KVM Switches, attached console modules (except KA9233), KVM adapter cables, and Matrix Plus KVM adapter cables. As new versions of the KM0832 firmware become available, they can be downloaded from our Website. Check the Website regularly to find the latest information and firmware upgrade packages.

## Downloading the Firmware Upgrade Package

To download the firmware upgrade package:

1. From a computer that is not part of your KVM installation go to our Website and choose the model name that relates to your device. A list of available firmware upgrade packages appears.
2. Choose the firmware upgrade package that you wish to install (usually the most recent) and download it to your computer. There may be two different firmware upgrade packages available for each firmware version:
   - If you want to upgrade the firmware for all possible devices in the installation, choose a firmware upgrade package with an FW extension. (See *Upgrading Firmware via the KM0832 Administrator Utility*, page 76, to use this firmware upgrade package to upgrade the firmware.)

     **Note:** Only KM0832 switches and their attached console modules (except KA9233), KVM adapter cables, and Matrix Plus KVM adapter cables can be upgraded using a firmware upgrade package with an FW extension. Any other KVM switch, its attached console modules and KVM adapter cables, regardless of their type, cannot be upgraded from the KM0832. To upgrade firmware for KVM switches and console modules not mentioned above, refer to the user manuals for those devices.

   - If you want to upgrade the firmware for the first-level (root) KM0832 only, choose a firmware upgrade package with an EXE extension (the Firmware Upgrade Utility). Use this firmware upgrade package in single-level installations and when recovering from a failed firmware upgrade. (See *Upgrading Firmware via the Firmware Upgrade Utility*, page 78, to use this firmware upgrade package to upgrade the firmware.)

## Preparing to Upgrade the Firmware

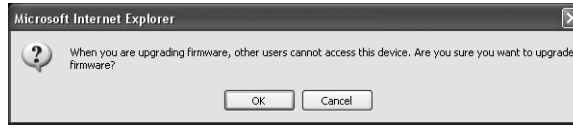
To prepare to upgrade the firmware:

- Notify all users to logout of the OSD and the KM0832 Administrator Utility.
- Ensure that all computers are powered on; otherwise, some KVM adapter cables may not be upgraded. (Disregard this if you are using the Firmware Upgrade Utility to upgrade the firmware.)

## Upgrading Firmware via the KM0832 Administrator Utility

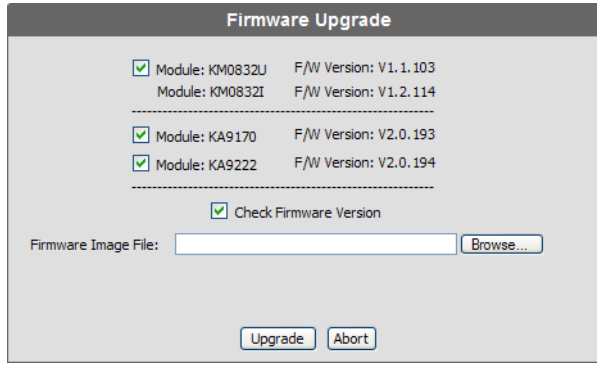
To upgrade the firmware for all possible devices in the KVM installation:

1. From the computer that was used to download the firmware upgrade package, open a Web browser and login to the KM0832 Administrator Utility (see *Logging In*, page 34).
2. Click the **Upgrade** icon. The following dialog box appears:


Microsoft Internet Explorer
When you are upgrading firmware, other users cannot access this device. Are you sure you want to upgrade firmware?
OK
Cancel

3. Click **OK** to enter Firmware Upgrade mode. This may take a few minutes while the system prepares to upgrade the firmware. Users with active sessions in the OSD will be informed that they should logout. (Some KVM consoles may be automatically logged out.)

   After a few minutes, the **Firmware Upgrade** Webpage appears. It displays the current firmware version(s) of the KM0832 and other module(s).



4. Select the check box for each module that you wish to upgrade. Or, click to clear the check box for each module that you do not wish to upgrade.
5. Click **Browse**. The **Choose file** dialog box appears.
6. Navigate to the directory where the new firmware upgrade package file was saved, select the file, and click **Open**. The path and filename appear in the **Firmware Image File** field. (If you have not yet downloaded the firmware upgrade package, see *Downloading the Firmware Upgrade Package*, page 75.)
7. Decide whether to check the firmware version level.
   - If you select Check Firmware Version, the KM0832 Administrator Utility compares the firmware level of the KM0832 with that of the upgrade files. If it finds that the current firmware version of the KM0832 is equal or higher, the firmware upgrade is aborted and the KM0832 automatically resets and returns to the login screen.
   - If you do not select Check Firmware Version, the Utility installs the upgrade files without comparing the version levels.
8. Click **Upgrade** to begin upgrading the firmware.

   -or-

   Click **Abort** to cancel the firmware upgrade. The KM0832 will automatically reboot, requiring you to login again.

   **Note:** It takes approximately 7 minutes to upgrade the firmware for a single level installation, or 17 minutes for a cascaded installation. Please be patient while the firmware is upgrading.

9. After the firmware upgrade completes, the KM0832 automatically resets and returns to the login screen.

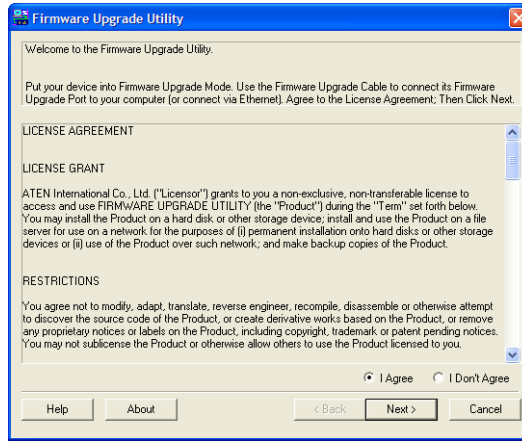
## Upgrading Firmware via the Firmware Upgrade Utility

Before starting the Firmware Upgrade Utility, ensure that both the host computer and first-level KM0832 lie within the same subnet and are not physically separated by a router, gateway, or firewall. (If you have not yet downloaded the firmware upgrade package, see *Downloading the Firmware Upgrade Package*, page 75.)

**Note:** This procedure will not upgrade firmware for cascaded KM0832, console modules, or KVM adapter cables.

To use the Firmware Upgrade Utility to upgrade the firmware:

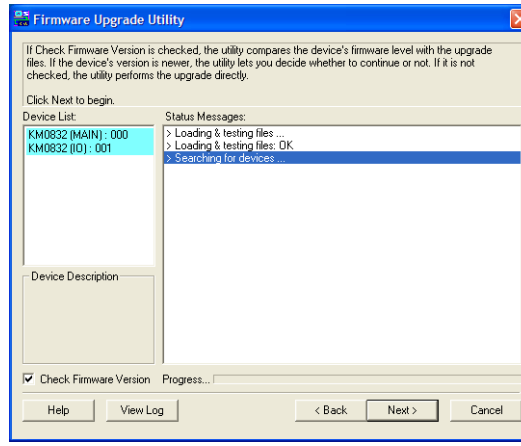
1. Double-click the **KM0832 Firmware Upgrade Utility** icon. The **Firmware Upgrade Utility** welcome screen appears.


Firmware Upgrade Utility
Welcome to the Firmware Upgrade Utility.
Put your device into Firmware Upgrade Mode. Use the Firmware Upgrade Cable to connect its Firmware Upgrade Port to your computer (or connect via Ethernet). Agree to the License Agreement; Then Click Next.
LICENSE AGREEMENT
LICENSE GRANT
ATEN International Co., Ltd. ("Licensor") grants to you a non-exclusive, non-transferable license to access and use FIRMWARE UPGRADE UTILITY (the "Product") during the "Term" set forth below. You may install the Product on a hard disk or other storage device; install and use the Product on a file server for use on a network for the purposes of (i) permanent installation onto hard disks or other storage devices or (ii) use of the Product over such network; and make backup copies of the Product.
RESTRICTIONS
You agree not to modify, adapt, translate, reverse engineer, recompile, disassemble or otherwise attempt to discover the source code of the Product, or create derivative works based on the Product, or remove any proprietary notices or labels on the Product, including copyright, trademark or patent pending notices. You may not sublicense the Product or otherwise allow others to use the Product licensed to you.
I Agree
I Don't Agree
Help
About
< Back
Next >
Cancel

2. Read the license agreement, and then click **I Agree**.
3. Click **Next** to continue. If multiple master (first-level) stations lie within the subnet, the **Select Master Device** dialog box appears.

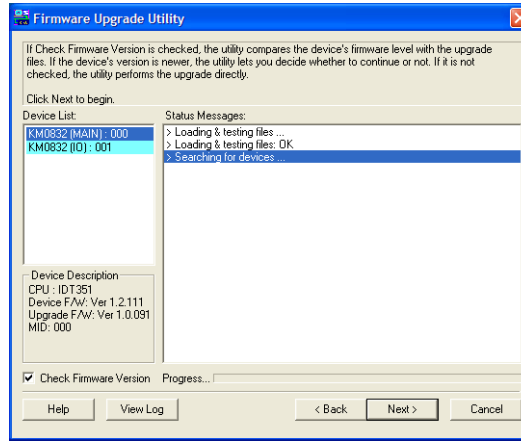
Select Master Device
Master device list:
KM0832-400106
SN0108-330366
PN9108-34037d
More than one Master device has been found. Only one Master/slave device can be upgraded at a time. Please select one of the Master devices from the list.
OK
Cancel

4. Select the KM0832 for which you wish to reinstall the firmware, and then click **OK**. The **Firmware Upgrade Utility** main screen appears.


Firmware Upgrade Utility
If Check Firmware Version is checked, the utility compares the device's firmware level with the upgrade files. If the device's version is newer, the utility lets you decide whether to continue or not. If it is not checked, the utility performs the upgrade directly.
Click Next to begin.
Device List:
KM0832 (MAIN) : 000
KM0832 (IO) : 001
Status Messages:
> Loading & testing files ...
> Loading & testing files: OK
> Searching for devices ...
Device Description
Check Firmware Version
Progress...
Help
View Log
< Back
Next >
Cancel

The utility inspects your installation. All devices capable of being upgraded by the package are listed in the **Device List** box.

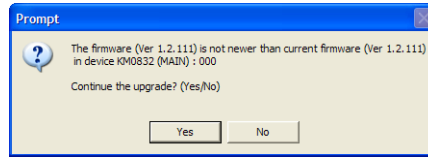
5. Select a device in the **Device List** box to display information about it in the **Device Description** panel.


Firmware Upgrade Utility
If Check Firmware Version is checked, the utility compares the device's firmware level with the upgrade files. If the device's version is newer, the utility lets you decide whether to continue or not. If it is not checked, the utility performs the upgrade directly.
Click Next to begin.
Device List:
KM0832 (MAIN) : 000
KM0832 (IO) : 001
Status Messages:
> Loading & testing files ...
> Loading & testing files: OK
> Searching for devices ...
Device Description
CPU : IDT351
Device F/W: Ver 1.2.111
Upgrade F/W: Ver 1.0.091
MID: 000
Check Firmware Version
Progress...
Help
View Log
< Back
Next >
Cancel

*(Continues on next page.)*

*(Continued from previous page.)*

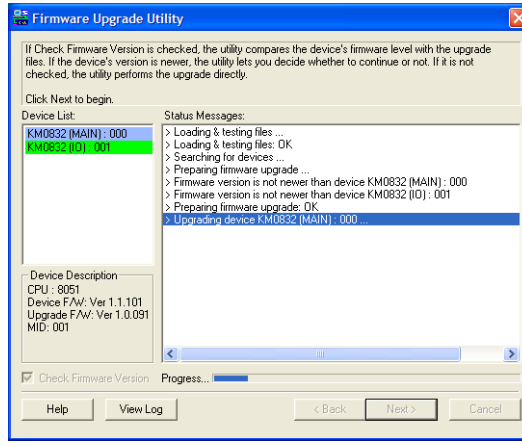
6. Select the **Check Firmware Version** check box if you wish to compare the current firmware version level of the KM0832 to that of the Firmware Upgrade Utility installation files. Click **Next** to begin reinstalling the firmware. If the KM0832's firmware version level is equal to or higher than that of the installation files, the following dialog box appears to give you the option to abort the operation:


Prompt
The firmware (Ver 1.2.111) is not newer than current firmware (Ver 1.2.111) in device KM0832 (MAIN) : 000
Continue the upgrade? (Yes/No)
Yes
No

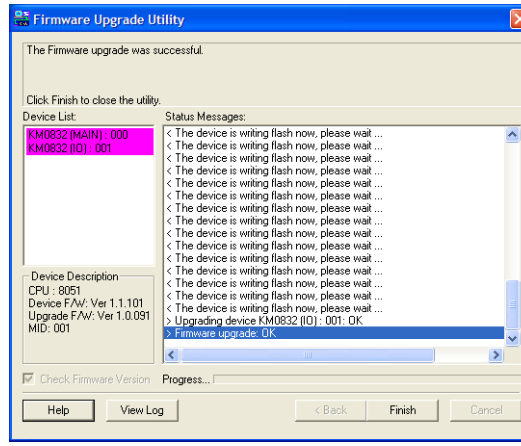
7. Click **Yes** to begin reinstalling the firmware; or, click **No** to abort the operation.

   If you chose not to check the firmware version, the Firmware Upgrade Utility installs the upgrade files without comparing the firmware version levels.

8. As the upgrade proceeds, status messages appear in the **Status Messages** box, and the progress toward completion is shown on the **Progress** bar.


Firmware Upgrade Utility
If Check Firmware Version is checked, the utility compares the device's firmware level with the upgrade files. If the device's version is newer, the utility lets you decide whether to continue or not. If it is not checked, the utility performs the upgrade directly.
Click Next to begin.
Device List:
KM0832 (MAIN) : 000
KM0832 (IO) : 001
Status Messages:
> Loading & testing files ...
> Loading & testing files: OK
> Searching for devices ...
> Preparing firmware upgrade ...
> Firmware version is not newer than device KM0832 (MAIN) : 000
> Firmware version is not newer than device KM0832 (IO) : 001
> Preparing firmware upgrade: OK
> Upgrading device KM0832 (MAIN) : 000 ...
Device Description
CPU : 8051
Device F/W: Ver 1.1.101
Upgrade F/W: Ver 1.0.091
MID: 001
Check Firmware Version
Progress...
Help
View Log
< Back
Next >
Cancel

9. After the upgrade has been completed, a screen appears to inform you that the procedure was successful:




10. Click **Finish** to close the Firmware Upgrade Utility.

    After a successful reinstallation, the KVM switches exit Firmware Upgrade mode.

## Upgrade Failed

If a device fails to complete the upgrade successfully, start the firmware upgrade procedure again. If the KM0832 becomes inoperable after a failed firmware upgrade, follow the procedure to recover from a failed firmware upgrade.

## Recovering from a Failed Firmware Upgrade

If a firmware upgrade procedure is aborted prematurely (due to a power outage, for example), the KVM switch that was being upgraded at the time may become inoperable and may be incapable of accepting a normal firmware upgrade. Follow this procedure to recover from the failed firmware upgrade.

To recover from a failed firmware upgrade:

1. Power off the first-level KM0832. Do not power off the cascaded and daisy-chained KVM switches (if applicable).
2. Locate the F/W UPGRADE switch on the back panel of the KM0832. Slide the switch to the RECOVER position.
3. Power on the first-level KM0832.
4. Upgrade the firmware using the Firmware Upgrade Utility. (See *Upgrading Firmware via the Firmware Upgrade Utility*, page 78.)
5. When the firmware upgrade recovery completes, the KM0832 will issue a single continuous beep.
6. Slide the F/W UPGRADE switch to the NORMAL position. The beep will stop.
7. Power off the first-level KM0832, wait 5 seconds, and then power it on again.
8. Upgrade the firmware to the latest firmware version. (See *Upgrading Firmware via the KM0832 Administrator Utility*, page 76.) If you already upgraded to the latest firmware version in Step 4, you do not need to upgrade the firmware again.

## Replacing the Root KM0832 with a Child KM0832

If you replace the root (first-level) KM0832 with a child (lower-level) KM0832, the new root KM0832 will ask you to confirm whether you want to keep the system settings of the previous root KM0832. If you choose to keep the settings, all groups, users, and port notes will be retained. However, some system settings such as date, time, station name, and Webpage Session Timeout may be lost. If you choose to discard the settings, the KM0832 will return to the original factory default settings. The KM0832 cannot be accessed until you have completed this procedure.

To replace the root KM0832 with a child KM0832:

1. Login to the KM0832 Administrator Utility. A Webpage appears that asks you to confirm whether you want to keep the system settings.
2. Click **Yes** to keep the system settings of the previous root KM0832.

   -or-

   Click **No** to discard the system settings and return to the original factory default settings.
3. The KM0832 automatically resets and returns to the login screen. Now you may access the KM0832.

# Backing Up and Restoring Settings

Super administrators and administrators can backup KM0832 system settings to a file and later restore them to the system.

We suggest that you backup system settings:

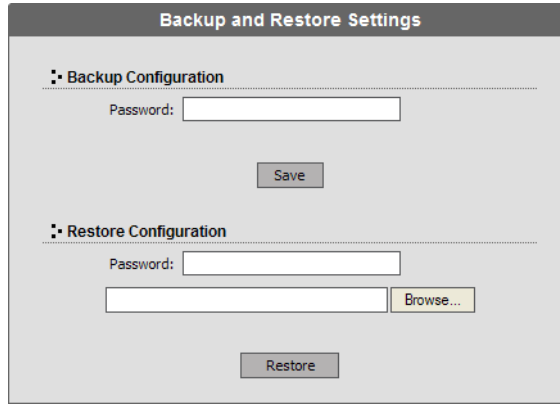
- before making changes.
- if you install multiple KM0832 in separate installations and you want to use the same settings.
- if the KM0832 has a problem and needs to be replaced.
- when upgrading to a newer version of the KM0832.

Routine backups can speed recovery should you ever have a complete system failure and need to reinstall the firmware.

| Action | Description |
|---|---|
| Backup | Backs up root station settings, user and group accounts, user profiles, port access rights, and shortcuts. |
| Restore | Deletes the current root station settings, user and group accounts, user profiles, port access rights, and shortcuts and restores those saved in the configuration backup file. |

To back up system settings:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Backup** icon. The **Backup and Restore Settings** Webpage appears.




3. Under **Backup Configuration**, enter a password for the backup configuration file if you want password protect it; otherwise, leave this field blank. There are no restrictions on characters that can be used in passwords.
4. Click **Save**. The **File Download** dialog box appears.
5. Click **Save**. The **Save As** dialog box appears.
6. Navigate to the directory where you want to save the file and click **Save**. The backup configuration file is saved in the directory.

To restore system configurations:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Backup** icon. The **Backup and Restore Settings** Webpage appears.
3. Under **Restore Configuration**, enter the password that you used to password protect the backup configuration file. If you did not password-protect the file leave this field blank.
4. Click **Browse**. The **Choose file** dialog box appears.
5. Navigate to the directory where the configuration backup file was saved and select the file. The path and filename appear in the field.
6. Click **Restore**. The backup configuration file settings replace all current settings. When the configurations are finished restoring the KM0832 will reboot. A message will be sent to OSD users with active sessions to notify them that configurations are being restored and that the system will reboot.

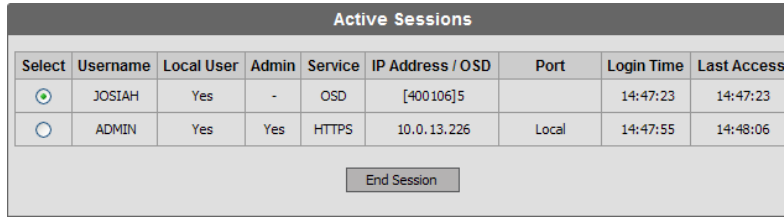
## Viewing and Ending User Sessions

The KM0832 lists all users who are currently logged in to the KM0832 Administrator Utility and OSD and shows details about their sessions. If a user account is misused, or if another user needs to login to the KM0832 Administrator Utility, super administrators can view and end the sessions of other super administrators, administrators and users. Super administrators also can login to the KM0832 Administrator Utility when all sessions are in use and close the session of another user.

The first 7 users to login to the KM0832 Administrator Utility have normal access, that is, they may use all features permitted by their account settings. Once 7 users are logged in at the same time, super administrators have provisional access in order to close the sessions of other users. (Provisional access expires after 10 minutes.) The maximum number of users that can login to the KM0832 Administrator Utility at the same time is 16.

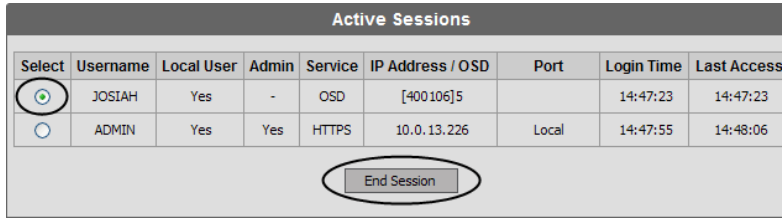
To view current user sessions:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Session** icon. The **Active Sessions** Webpage appears. It displays information about the users who have active sessions in the KM0832 Administrator Utility.



To end a user session:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Session** icon. The **Active Sessions** Webpage appears.




3. Select the user whose session you wish to end, and then click **End Session**. The user is logged out of the KM0832 and the username no longer appears on the Active Sessions Webpage.

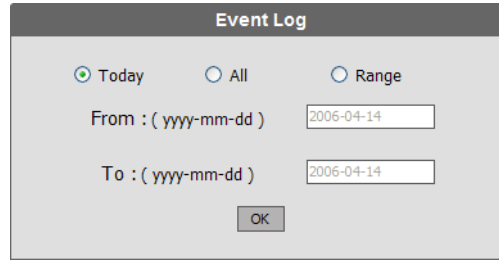
   Repeat Step 3 for each user that you want to logout of the KM0832.

## Viewing and Clearing the Log File

The log file is a record of events that happen in the KM0832 Administrator Utility. It records events such as system boot up and when important administrative changes are made. Each entry is recorded with the date and time that the event happened. User logins and logouts are also recorded, and in addition to the date and time, also include the user's username and IP address. Only super administrators and administrators can view and clear the log file.

To view the log file:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Log** icon. The **Event Log** Webpage appears.




3. Select one of the following three ways to view log file events:
   - Today: Select this option to view only events that happened today.
   - All: Select this option to view all events in the log file.
   - Range: Select this option to view events that happened over a period of one or more days. Enter the beginning date in the *From* field and the ending date in the *To* field. Enter the date in Arabic numerals, year first, then the month, followed by the day. The year must carry four digit places, while the month and day each must carry two digit places. The year, month, and day each must be separated by a hyphen. For example, December 5th, 2005, should be written *2005-12-05*.

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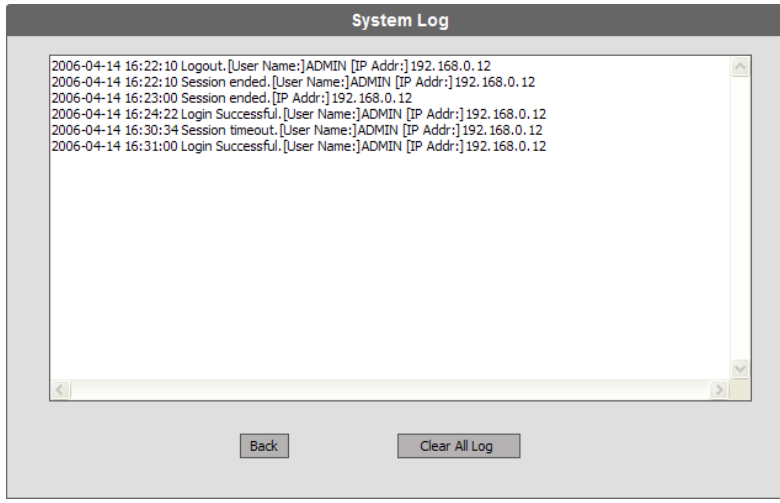
4. Click **OK**. The **System Log** Webpage appears.


System Log
2006-04-14 16:22:10 Logout.[User Name:]ADMIN [IP Addr:]192.168.0.12
2006-04-14 16:22:10 Session ended.[User Name:]ADMIN [IP Addr:]192.168.0.12
2006-04-14 16:23:00 Session ended.[IP Addr:]192.168.0.12
2006-04-14 16:24:22 Login Successful.[User Name:]ADMIN [IP Addr:]192.168.0.12
2006-04-14 16:30:34 Session timeout.[User Name:]ADMIN [IP Addr:]192.168.0.12
2006-04-14 16:31:00 Login Successful.[User Name:]ADMIN [IP Addr:]192.168.0.12
Back
Clear All Log

The log file displays events occurring in the KM0832 system according to the options selected in the Event Log Webpage. Up to 4096 events are stored in the Event Log's memory, after which the oldest events are discarded as new events are recorded.

**Note:** If the KM0832 suddenly loses power, such as during a power outage, and the log file is full at the time, only the 2048 most recent events will be shown when the KM0832 is restarted.

5. Click **Back** to return to the **Event Log** Webpage.

To clear the contents of the log file:

If you delete the contents of the log file you cannot recover them; however, this will not affect future log events.

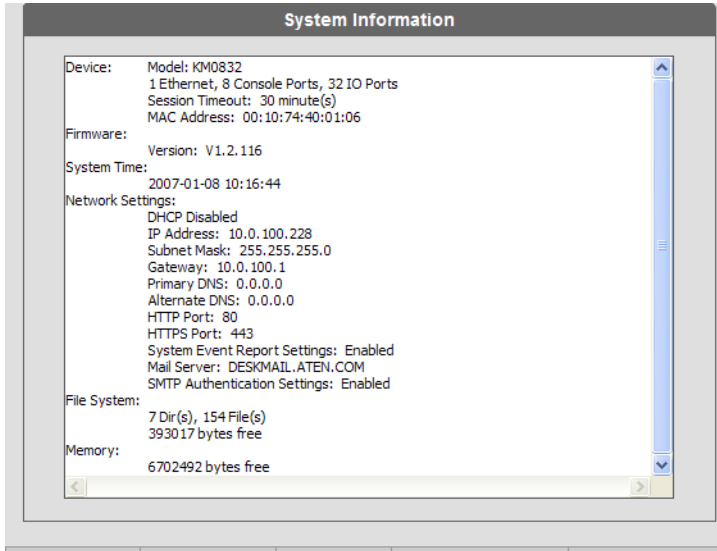
1. Follow Steps 1–4 for viewing the log file.
2. At the bottom of the **System Log** Webpage, click **Clear All Log**. All events in the log file are deleted.

## Viewing System Information

Super administrators can view information about the KM0832 through the System Information Webpage. It displays the current firmware version(s) of the KM0832 and attached modules, the system time, the network settings, and the file system.

To view system information:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. From the **Administration** menu, choose **Super Adm Configuration** > **System Information**. The **System Information** Webpage appears.




| Note | Port Path | Station ID | Computer/Station | Firmware |
|---|---|---|---|---|
| KM0832-01 | R | 0x400106 | KM0832 | V1.2.116 |
| | | | | |
| | R-MAIN | | | V1.2.116 |
| | R-UART | | | V1.1.104 |
| | R-Console5 | | KA9222 | V2.1.203 |

3. If you are not able to view some of the information, use the scroll bar to scroll down until you can view it.

## Viewing Help

Most KM0832 Administrator Utility functions are described in Help.

To open the help file:

1. If you are not logged in to the KM0832 Administrator Utility, open the KM0832 Login page and log in. The KM0832 Administrator Utility Main Screen will appear.
2. Click the **Help** icon. The **KM0832 Help** appears.

## Logging Out

Click the **Logout** icon to end sessions in the KM0832 Administrator Utility. If a user closes the browser without first logging out, the user's session will remain active for 5 minutes, after which time it will be ended automatically. For security reasons we recommend that you either close your Web browser or clear the browser cache after logging out.

# Chapter 5
# OSD Operation

## OSD Overview

**Note:** The following chapter describes OSD control of the KM0832 when accessed by a KA9222A or KA9272A console module. For information regarding OSD control via the KA9233 console module, refer to the KA9233 user manual.

The KM0832 OSD provides a visual, menu-driven, mouse-enabled, interface that offers quick and convenient computer access and control, as well as efficient system administration including user management (access rights, passwords, etc.). Changes made in the OSD are reflected in the KM0832 Administrator Utility and vice-versa.

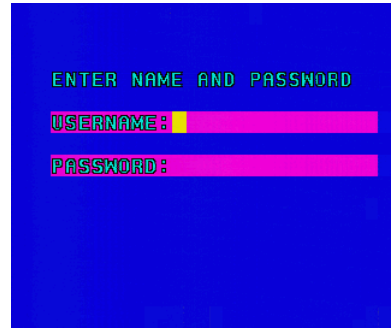
Each OSD menu option activates a function that configures and controls the operation of the KVM installation. All procedures start from the OSD main screen.

To open the OSD main screen:

1. Tap the **[Scroll Lock]** key twice.

   **Note:** [Scroll Lock] is the default OSD hotkey. You can optionally change the Hotkey to the Ctrl key (see *OSD ACTIVATION*, page 104, for details).

   The login screen appears:

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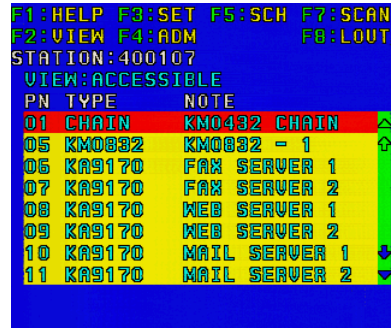
2. Key in a valid username and password, then press **[Enter]**.

**Note:** The first time that you log in to the KM0832 OSD, you must use the default super administrator account. The default username is *ADMIN* and the default password is also *ADMIN*. This account can neither be deleted nor does it appear in the username list. The username cannot be changed; however, the password can be changed. We strongly recommend that you change the password immediately; otherwise, your KVM switch and all connected servers are vulnerable to access by unauthorized users.
See *Configuring OSD User Settings*, page 72, to change the default password. After other user accounts have been added to the KM0832, it is no longer necessary to use the default super administrator account to login.

After you login, a screen similar to the one below appears:

3. Press **[Enter]**, and a screen similar to the one below appears:




**Note:** 1. The diagram depicts the super administrator's main screen. The user main screen does not show the **F4** function, since it is reserved for super administrators and administrators. Normal users cannot access it.

2. The OSD always starts in List view, with the highlight bar at the same position it was in the last time the OSD was closed.

3. Only the KVM ports that have been set as accessible by the (super) administrator for the currently logged in user are visible (see *PORT ACCESS*, page 109, for details).

4. Any switches or computers added to, disconnected from or rearranged in the installation will be auto-detected and the port list will be automatically updated.

## OSD Main Screen Headings

| Heading | Explanation |
|---|---|
| PN | This column lists the port numbers for all the KVM ports on the KM0832. The simplest way to access a particular cascaded or daisy-chained switch or computer is to move the highlight bar to it and press **[Enter]**. |
| TYPE | Lists the model number of an attached switch or KVM adapter cable, or displays “CHAIN“ for daisy-chained switches. |
| NOTE | This column lists the names of cascaded and daisy-chained switches as well as KVM port names, if given, directly connected to the KM0832 (see *SET PC NOTE*, page 111, or *CREATE STATION NOTE*, page 112). |

## OSD Navigation

Use the following procedures to navigate through OSD menus:

- To dismiss the main screen, and deactivate the OSD, click the **X** at the upper right corner of the OSD window; or press **[Esc]**.
- To logout, click **F8** at the top of the main screen, or press **[F8]**.
- To move up or down through the list one line at a time, click the up and down triangle symbols (▲▼) or use the Up and Down Arrow keys. If there are more list entries than there is room for on the main screen, the screen will scroll.
- To move up or down through the list one screen at a time, click the up and down arrow symbols (🡅🡇), or use the **[Page Up]** and **[Page Down]** keys. If there are more list entries than there is room for on the main screen, the screen will scroll.
- After executing any action, you automatically go back to the menu one level above.

# Accessing Switches and Computers

To access a computer, cascaded switch, or daisy-chained switch, double-click it; or, move the highlight bar to it, and then press **[Enter]**.

If more than one user tries to access a KVM port at the same time, the first user to gain access controls the KVM port, while the other users can only view it. If the controlling user exits the KVM port, the second user gains control.

## Single Level Installation

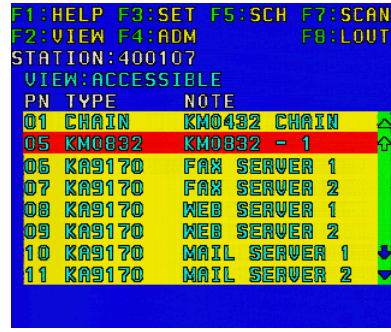
In a single level installation (see page 16) there are no additional switches cascaded or daisy-chained from the KM0832. The port list will show all the ports of the KM0832.

## Cascaded Installations

In a cascaded installation (see page 19) the default port list will show a cascaded switch's model number in the *TYPE* column next to its port number, and station note (if created; see *CREATE STATION NOTE*, page 112) in the *NOTE* column next to the model number.

**Note:** 1. You can cascade up to 3 levels of KM0832 and 1 level of non-KM0832 KVM switches.

2. You cannot daisy-chain additional switches from a cascaded switch.

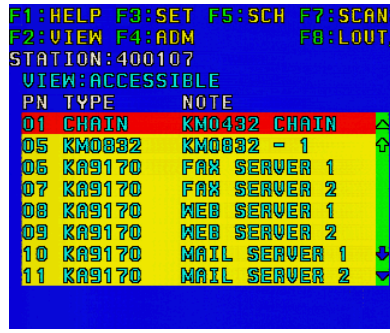


## Daisy-chained Installations

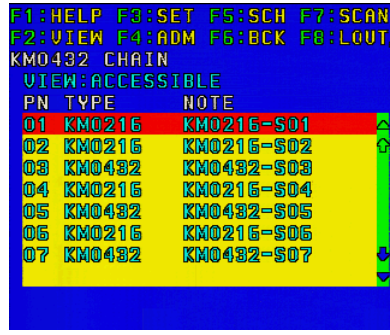
In a daisy-chained installation (see page 25) the default port list will show **CHAIN** in the *TYPE* column, and **KM0432 CHAIN** in the *NOTE* column next to port **01**.

**Note:** 1. **KM0432 CHAIN** will display in the *NOTE* column even if KM0216 are the only switches daisy-chained from the first level KM0832.

2. With a daisy-chained installation, KVM ports 1–4 on the first level KM0832 cannot be used. Do not connect any switches or KVM adapter cables to these ports.




Double-click port 01, or move the highlight bar to it, and then press [**Enter**] to view a the list of the daisy-chained switches in the installation. A maximum of 7 additional KM0432, or KM0216 switches can be daisy-chained from the first level KM0832.



# Port ID Numbering

Each KVM port in the KVM installation has a unique port ID. The port ID is composed of up to 3 port numbers separated by hyphens. These port numbers describe a path from the first-level KVM switch through the KVM installation to the target device. In Hotkey mode (Chapter 6) you can type a port ID to switch directly to any KVM port in the installation.

## Cascaded Installations

The port numbers that compose the port ID in cascaded installations are displayed in the following order from left to right:

1. The *port number* on the first-level KM0832
2. The *port number* on the second-level KVM switch (if applicable)
3. The *port number* on the third-level KVM switch (if applicable)

For example, a computer attached to **Port 3** of a third-level KVM switch, which is cascaded from **Port 6** of a second-level KM0832, which is cascaded from **Port 15** of the first-level KM0832, would have a port ID of: **15-6-3**.

## Matrix Plus KVM Adapter Cable Installations

1. The *port number* on the first-level KM0832
2. The *port number* on the second-level KVM switch (if applicable)
3. The *port number* on the third-level KVM switch (if applicable)
4. The *station ID* displayed on the Matrix Plus KVM adapter cable

For example, a computer attached to a Matrix Plus KVM adapter cable with **Station ID 3,** which is cascaded from **Port 6** of a third-level KM0832, which is cascaded from **Port 15** of a second-level KM0832, which in turn is cascaded from **Port 8** of the first-level KM0832, would have a port ID of: **8-15-6-3.**

## Daisy-chained Installations

The port numbers that compose the port ID in daisy-chained installations are displayed in the following order from left to right:

1. The port ID for daisy-chained KVM switches begins with “1”.
2. The position of the KM0432 or KM0216 Matrix KVM Switch in the daisy-chain. You can determine the position of the KM0432 or KM0216 in the daisy-chain by subtracting 1 from its station ID.

   For example, the station ID of the first KM0432 or KM0216 in the daisy-chain is 2.

   2 - 1 = 1

   The KM0432 or KM0216’s position in the daisy-chain is 1.

   The table below lists the KM0432 or KM0216’s station ID and its position in the daisy-chain.

| Station ID | Position in the Daisy Chain |
|---|---|
| 2 | 1 |
| 3 | 2 |
| 4 | 3 |
| 5 | 4 |
| 6 | 5 |
| 7 | 6 |
| 8 | 7 |

3. The *port number* on the KM0432 or KM0216

For example, a computer attached to **Port 18** of a KM0432, which is in **Position 7** in the daisy-chain (Station ID 8), which in turn is daisy-chained from the first-level KM0832, would have a port ID of: **1-7-18.**

# OSD Functions

OSD functions configure and control the OSD. Examples of what can be accomplished with the OSD include: rapidly switching to any KVM port; auto scanning specifically selected KVM ports; limiting the list of KVM ports you wish to view; managing port names; user management, system administration, and making OSD setting adjustments.

All setting changes are stored in temporary memory and remain in effect for the duration of your session. If you shut down the KM0832 without first logging out, your changes may be discarded. Setting changes in daisy-chained KM0432 or KM0216 only become permanent when you log out of the OSD (see page 117). If you shut down the KM0432 or KM0216 without first logging out, your changes are discarded.

To access an OSD function:

1. Click a function key field at the top of the main screen.

   -or-

   Press a function key on the keyboard.

2. In the submenus that appear, double-click on a choice.

   -or-

   Move the highlight bar to the choice, and then press **[Enter]**.

3. Click or press **[Esc]** to return to the previous menu level.

To change a setting:

1. Double-click it.

   -or-

   Move the highlight bar to it, and then press **[Enter]**.

2. After you select an item, a submenu with further choices appears. To make a selection, repeat Step 1 above. An icon appears before the selected choice.

A complete description of the KM0832's OSD operations are given in the sections that follow.

## F1: HELP

Click or press **[F1]** to access Help. It gives a brief description about each OSD function. It also displays information about the user, such as username, group membership, and the KVM console the user is operating.

To return to the OSD main screen, click or press **[Esc]**.

## F2: VIEW

Many of the OSD functions only operate on the computers that are currently displayed (listed) on the main screen. This function lets you broaden or narrow the scope of which KVM ports the OSD lists on the main screen. The submenu choices and their meanings are given in the table below.

| Setting | Function |
|---|---|
| VIEW MODE | Allows you to select which computers are listed in the OSD main screen. Choices are:<br>**PERSONAL**—The OSD lists the KVM ports that the user has set as personal. See *SET PERSONAL VIEW* (below).<br>**ACCESSIBLE**—The OSD lists only those KVM ports that the user is permitted to access. See *PORT ACCESS*, page 109.<br>**ACCESSIBLE + POWERED**—The OSD lists only those KVM ports that the user is permitted to access and that have their attached computers powered on.<br>The default is ACCESSIBLE + POWERED. |
| SET PERSONAL VIEW | If there are KVM switches cascaded from the KVM ports of the first-level KVM switch, you can create shortcuts to the computers of those lower-level KVM switches that will appear in the OSD list.<br>**To add a shortcut:**<br>1. Select ADD SHORTCUT. A box appears.<br>2. Enter the port ID number of the computer for which you wish to create a shortcut (e.g. 1-1-1). For a discussion on port ID numbering see page 97.<br>**To delete a shortcut:**<br>1. Select DELETE SHORTCUT. A list of shortcuts appears.<br>2. From the list, select the shortcut that you wish to delete.<br>3. Press **[Y]** to confirm; or, press **[N]** to cancel. |

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| Setting | Function |
|---|---|
| SET PORT ID | A submenu appears with three selections:<br>**ID POSITION**—Allows you to position where the port ID appears on the monitor. The default is the upper left corner, but you can have it appear anywhere on the screen.<br>Use the mouse or the arrow keys plus [Page Up], [Page Down], [Home], [End], and [5] (on the numeric keypad with [Num Lock] off), to position the port ID display, then double-click or press **[Enter]** to lock the position and return to the View submenu.<br>**DISPLAY DURATION**—Determines how long a port ID displays on the monitor after a KVM port change has taken place. The choices are:<br>USER DEFINED—which lets you select the amount of time (from 1–240 sec.); and<br>ALWAYS ON—which displays the port ID at all times.<br>If you select USER DEFINED, key in the number of seconds, then press **[Enter]**. The default is 3 seconds. A setting of 0 (zero) disables this function.<br>**DISPLAY MODE**—Selects how the port ID is displayed: the port number plus the port name (PORT NUMBER + PC NAME); the port number alone (PORT NUMBER); or the port name alone (PC NAME). The default is PORT NUMBER + PC NAME. |
| SET SCAN | **SCAN INTERVAL**—Determines how long the focus dwells on each KVM port as it cycles through the selected KVM ports in Auto Scan mode (see *F7: SCAN*, page 116). Enter a value from 0–240 seconds, and then press **[Enter]**. The default is 5 seconds. Entering 0 will cause the KM0832 to automatically enter Skip mode when Auto Scan mode is invoked.<br>**SCAN MODE**—Selects which computers will be accessed under Auto Scan mode (see *F7: SCAN*, page 116). Choices are:<br>PERSONAL—only those KVM ports that the user has set as personal. See *SET PERSONAL VIEW*, page 102.<br>ACCESSIBLE—only those KVM ports that the user is permitted to access. See *PORT ACCESS*, page 109.<br>ACCESSIBLE + POWERED—only those KVM ports that the user is permitted to access and that have their attached computers powered on.<br>The default is ACCESSIBLE + POWERED. |

## F3: SET

This function allows the user to change the account password and set up a unique working environment. A separate profile for each user is stored by the OSD and is activated according to the username that is provided during log in. The settings are explained in the following table:

| Setting | Function |
|---|---|
| CHANGE PASSWORD | Enables the user to change the account password.<br>Enter the old account password in the top field. Enter a new password in the middle field, and then reenter the password in the bottom field to confirm it. Press enter to save changes and return to the previous menu. |
| OSD ACTIVATION | Selects which Hotkey activates the OSD function:<br>[Scroll Lock] [Scroll Lock] or [Ctrl] [Ctrl].<br>Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination. |
| SET LOGOUT TIMEOUT | If there is no input from the KVM console for the amount of time set with this function, the operator is automatically logged out. A login is necessary before the KVM console can be used again.<br>This enables other operators to gain access to the computers when the original operator is no longer accessing them, but has forgotten to logout. To set the timeout value, key in a number from 1–180 minutes, then press **[Enter]**. If the number is 0 (zero), this function is disabled.<br>The default is 0 (disabled). |
| SCREEN BLANKER | If there is no input from the KVM console for the amount of time set with this function, the screen is blanked. Key in a value from 1–30 minutes, then press **[Enter]**. A setting of 0 disables this function. The default is 0 (disabled). |
| HOTKEY COMMAND MODE | Enables / Disables the Hotkey Command function in case a conflict with programs running on the computers occurs. The default is enabled. Choices are Y (Yes), or N (No). |

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| Setting | Function |
|---|---|
| SET BEEPER | When activated, the beeper sounds whenever a KVM port is changed, when activating the Auto Scan mode (see *F7: SCAN*, page 116), or an invalid entry is made on an OSD menu. The default is Y (activated). Choices are Y (Yes), or N (No). |
| IDLE TIMEOUT | If there is no input from the KVM console accessing a particular KVM port for the amount of time set with this function, the KVM port is released, allowing it to be accessed by the other KVM consoles.<br>To set the timeout value, key in a number from 0–240 seconds, then press **[Enter]**.<br>If the number is 0 (zero), this function is disabled. The default is 5 seconds. |
| RESTORE USER DEFAULT | Selecting this restores the original factory default settings for VIEW and SET for the user profile. Choices are Y (Yes), or N (No). |

## F4: ADM

F4 is a (super) administrator only function. It allows configuration and control of the overall operation of the OSD.

**Note:** When creating user accounts you must add each user to a group. Therefore, we suggest that you create groups before users. If you do not wish to create groups you may add users to the default group account. However, the default group account cannot be used to grant port access to group members. In this case, you must individually add users to the KVM port(s).

### ACCOUNT MANAGEMENT

| Setting | Function |
|---|---|
| CREATE GROUP | Opens the NEW GROUP NAME field. Enter a name for the new group, and then press **[Enter]**. The group name may be up to 15 characters long, and can consist of any combination of letters and numbers (A–Z, 0–9). |
| MODIFY GROUP | Lists all groups. Select the group name that you wish to modify. Edit the group name, and then press **[Enter]**. |
| DELETE GROUP | Lists all groups. Select the group name that you wish to delete. Press **[Y]** to confirm; or, press **[N]** to cancel. |
| GROUP ACCESS SETTING | 1. The group list appears.<br>2. Select the group for which you wish to modify port access rights. A list of all KVM ports appears.<br>3. Select a KVM port, and then set the Group Access Type: VIEW—group members can only view video from the KVM port; FULL—group members can view video from the KVM port and control it.<br>4. Press **[Esc]** to exit. The Group Access Type you selected is assigned to the group.<br>5. Repeat this procedure for all the KVM ports in the list. |

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| Setting | Function |
|---|---|
| CREATE USER ACCOUNT | 1. The group list appears.<br>2. From the list, select the group to which you wish to add the new user.<br>3. Enter a username and a password for the account; reenter the password to confirm it, and then press **[Enter]**. The username and password may be up to 15 characters long, and can consist of any combination of letters and numbers (A–Z, 0–9). The User Type list appears.<br>4. Select a User Type for the account: user (NORMAL USER), administrator (ADM), or (SUPER ADM). (Only super administrators can grant super administrator user rights to other users.) |
| MODIFY USER ACCOUNT | Allows you to modify the user account settings. Choices are: RESET USER PASSWORD, CHANGE USER TYPE, and CHANGE USER GROUP.<br>**To change a user's account password:**<br>1. Select RESET USER PASSWORD. The user list appears.<br>2. From the list, select the user for whom you wish to change the password.<br>3. Enter the new password; reenter the new password to confirm it, and then press **[Enter]**. The password is changed.<br>**To change a user's User Type:**<br>1. Select CHANGE USER TYPE. The user list appears.<br>2. From the list, select the user for whom you wish to change the User Type.<br>3. Select the new User Type, and then press **[Esc]** to exit. The User Type is changed.<br>**To change a user's group membership:**<br>1. Select CHANGE USER GROUP. The user list appears.<br>2. From the list, select the user for whom you wish to change the group membership. The group list appears.<br>3. From the list, select the group to which you wish to add the user. The user is removed from the original group and added to the new group. |
| DELETE USER ACCOUNT | Opens the user list. Select the user that you wish to delete. Press **[Y]** to confirm; or, press **[N]** to cancel. |

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| Setting | Function |
|---|---|
| USER ACCESS SETTING | Allows you to set special access rights for a user to specific KVM ports. If you want a user's KVM port access rights to be determined by the group, you do not need to modify these settings.<br>1. The user list appears.<br>2. Select the user for whom you wish to modify port access rights. A list of all KVM ports appears.<br>3. Select a KVM port, and then set the User Access Type: NONE—no port access; VIEW—users can only view video from the KVM port; FULL—users can view video from the KVM port and control the KVM port; GROUP—port access rights are determined by the group of which the user is a member. (GROUP is the default setting.) The User Access Type you selected is assigned to the user.<br>**Note:** If NONE is set, the KVM port will not appear in the user's KVM port list on the OSD main screen.<br>4. If the OSD does not automatically return to the previous screen, press **[Esc]**. The OSD returns to the previous screen.<br>5. Repeat this procedure for all the KVM ports in the list. |

## PORT MANAGEMENT

| Setting | Function |
|---|---|
| PORT ACCESS | This function allows the administrator to define group and user access to the computers on the installation on a port-by-port basis.<br><br>Select a KVM port from the list to manage user and group access to the KVM port. A list appears with the following choices: ADD GROUP, SET GROUP ACCESS TYPE, DELETE ACCESS GROUP, ADD USER, SET USER ACCESS TYPE, and DELETE ACCESS USER.<br><br>**To grant port access to a group:**<br><br>1. Select ADD GROUP. The group list appears.<br>2. From the list, select the group to which you wish to grant access to the KVM port.<br>3. Press **[Y]** to confirm; or, press **[N]** to cancel.<br><br>**To set the Group Access Type:**<br><br>1. Select SET GROUP ACCESS TYPE. A list of all groups that have been added to the KVM port appears.<br>2. From the list, select the group for which you wish to set the Group Access Type.<br>3. Set the Group Access Type: VIEW—group members can only view video from the KVM port; FULL—group members can view video from the KVM port and control the KVM port.<br>4. Press **[Esc]** to exit. The Group Access Type you selected is assigned to the group.<br><br>**To revoke group access for a port:**<br><br>1. Select DELETE ACCESS GROUP. A list of all groups that have been added to the KVM port appears.<br>2. From the list, select the group for which you wish to revoke access to the KVM port.<br>3. Press **[Y]** to confirm; or, press **[N]** to cancel. |

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| Setting | Function |
|---|---|
| PORT ACCESS (cont.) | **To grant port access to a user:**<br>1. Select ADD USER. The user list appears.<br>2. From the list, select the user to whom you wish to grant access to the KVM port.<br>3. Press **[Y]** to confirm; or, press **[N]** to cancel.<br>**To set the User Access Type:**<br>1. Select SET USER ACCESS TYPE. A list of all users who have been added to the KVM port appears.<br>2. From the list, select the user for whom you wish to set the User Access Type.<br>3. Set the User Access Type: NONE—no port access; VIEW—users can only view video from the KVM port; FULL—users can view video from the KVM port and control the KVM port.<br>**Note:** If NONE is set, the KVM port will not show up in the user's KVM port list on the OSD main screen.<br>4. Press **[Esc]** to exit. The User Access Type you selected is assigned to the user.<br>**To revoke user access for a port:**<br>1. Select DELETE ACCESS USER. A list of all users that have been added to the KVM port appears.<br>2. From the list, select the user for whom you wish to revoke access to the KVM port.<br>3. Press **[Y]** to confirm; or, press **[N]** to cancel. |

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| Setting | Function |
|---|---|
| SET PC NOTE | To help remember which computer is attached to a particular KVM port, every KVM port can be given a name. This function allows the administrator to create, modify, or delete port notes.<br>**To edit a port note:**<br>1. Click the KVM port you want, or use the navigation keys to move the highlight bar to it, then press **[Enter]**.<br>2. Type a new port note, or modify/delete the old one. Port notes may be up to 15 characters long. Legal characters include: a–z, A–Z, 0–9, space, and hyphen.<br>Port notes are not case sensitive; the OSD displays the port note in all capitals no matter how they were entered.<br>3. When you have finished editing, press **[Enter]**. The new name appears in the PORT NOTE field. To abort the change, press **[Esc]**. |
| SET PORT LANGUAGE | This function allows the administrator to define the keyboard language layout for each KVM port. The default is U.S. ENGLISH.<br>**To set the port language:**<br>1. From the list, select the KVM port for which you wish to set the computer's keyboard language layout.<br>2. Set the keyboard language layout: US ENGLISH, JAPANESE, or FRENCH.<br>3. Press **[Esc]** to exit. The keyboard language layout you selected is assigned to the KVM port. |
| SET PORT OPERATING SYSTEM | This function allows the administrator to define the operating platform for the computer connected to each KVM port. The default is WINDOWS (PC compatible).<br>**To set the port operating system:**<br>1. From the list, select the KVM port for which you wish to set the computer's operating platform.<br>2. Set the operating platform: WINDOWS, MAC, or SUN.<br>3. Press **[Esc]** to exit. The operating platform you selected is assigned to the KVM port. |
| RESTORE PORT DEFAULT | This function revokes port access for users and groups, removes the station name and port notes, and restores original factory default settings for the Port Operating System and Port Language fields. See *Factory Default Settings*, page 132. |

## STATION MANAGEMENT

| Setting | Function |
|---|---|
| CREATE STATION NOTE | This function allows administrators to assign a name to the KM0832 station, which helps to distinguish identical stations on a multiple station KVM installation. |
| DELETE STATION NOTE | This function allows administrators to delete a station note. |

## SYSTEM INFORMATION

| Setting | Function |
|---|---|
| SYSTEM INFORMATION | This function differs from the System Information screen in the KM0832 Administrator Utility. It displays a list of all KM0832 modules, as well as connected console modules and KVM adapter cables. Important information about each device is shown in the list, such as the KVM console or port number to which the device is attached, the device type, the original firmware version and the most recent firmware upgrade version. |

## SADM CONFIGURATION

Only the super administrator can view and control the functions under this menu.

| Setting | Function |
|---|---|
| SET NETWORK | This function allows administrators to configure the network settings for the KM0832 on the Local Area Network (LAN). A submenu appears with the following choices: HTTP PORT, HTTPS PORT, AUTOMATIC IP ADDRESS, and IP ADDRESS SETTING.<br>**To set the HTTP port:**<br>1. From the list, select HTTP PORT.<br>2. Key in the port (typically port 80), and press **[Enter]**.<br>**To set the HTTPS port:**<br>1. From the list, select HTTPS PORT.<br>2. Key in the port (typically port 443), and press **[Enter]**.<br>**To enable dynamic IP addressing with a DHCP server:**<br>1. From the list, select AUTOMATIC IP ADDRESS.<br>2. Press **[Y]** to enable; or, press **[N]** to disable.<br>**Note:** The default is enabled. If you disable this feature, then you should manually configure the IP settings.<br>**To manually configure the IP settings:**<br>1. From the list, select IP ADDRESS SETTING. A list appears with the following choices: IP ADDRESS, SUBNET MASK, GATEWAY, PRIMARY DNS SERVER, and ALTERNATE DNS SERVER.<br>2. Select each choice and enter the numerical address (dotted quad address), and then press **[Enter]**.<br>**Note:** These settings do not apply if you enable DHCP. |
| SET CLOCK | This function allows administrators to configure the date and time for the KM0832. A submenu appears with the following choices: SET DATE and SET TIME.<br>**To set the date and time:**<br>1. From the list, select SET DATE. In the field that appears, enter the date in *YYYY-MM-DD* format, and then press **[Enter]**.<br>2. From the list, select SET TIME. In the field that appears, enter the time in *HH:MM:SS* format, and then press **[Enter]**. |

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| Setting | Function |
|---|---|
| BROADCAST | Selecting BROADCAST invokes Broadcast mode. When this function is in effect, commands sent from the KVM console keyboard are broadcast to all available computers in the installation.<br>This function is particularly useful for operations that need to be performed on multiple computers, such as performing a system wide shutdown, installing or upgrading software, etc.<br>◆ While Broadcast mode is in effect, a *speaker* symbol appears before the port ID display of the KVM port that currently has the KVM console focus.<br>◆ While Broadcast mode is in effect, other KVM consoles will not be able to control the computers; however, they will be able to access the KVM ports to view the computers.<br>◆ While Broadcast mode is in effect, a message indicating such displays across the bottom of the Super Administrator's screen.<br>◆ Mouse commands will not be broadcast.<br>◆ If the super administrator that invoked Broadcast mode is idle for longer than the period of time set with the Idle Timeout function, Broadcast mode is canceled. (See *Set Idle Timeout*, page 73 for details.)<br>◆ While Broadcast mode is in effect, if the super administrator that invoked Broadcast mode invokes the OSD for more than 30 seconds, Broadcast mode is canceled.<br>◆ To exit Broadcast mode, invoke the OSD (with the OSD Hotkey), then select BROADCAST to turn Broadcast mode off. |

## F5: SCH

The Search function provides a convenient method to easily locate KVM ports and cascaded stations by their port notes.

To search for a KVM port:

1. From the OSD main screen, press or click **[F5]**.
2. In the field that appears, enter the port note of the KVM port for which you are searching. All port notes that match or contain the search term(s) appear in a list.

## F6: BCK

The Back function allows you to step back, or “up“ to a higher level switch in the installation. This function is not available when the OSD port list is at the root station.

## F7: SCAN

This function allows you to automatically switch among the available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching yourself.

- The selection of KVM ports to be included for Auto Scanning is made with the SCAN MODE setting under the **F2 SET** function (see *SET SCAN*, page 103).
- The amount of time that each KVM port displays for is set with the SCAN INTERVAL setting under the **F2 SET** function (see *SET SCAN*, page 103). When you want to stop at a particular location, press the **[Spacebar]** or **[Esc]** to stop scanning and exit Auto Scan mode.
- If the scanning stops on an empty KVM port, or one where the computer is attached but is powered off, the monitor screen will be blank, and the mouse and keyboard will have no effect. Simply wait—after the Scan Duration time is up, Auto Scan mode will switch to the next KVM port.
- As each KVM port is accessed, an **S** appears in front of the port ID display to indicate that it is being accessed under Auto Scan mode.
- While Auto Scan mode is in effect, the KVM console will not function normally. You must exit Auto Scan mode in order to regain control of the KVM console.
- While you are in Auto Scan mode, you can pause the scanning in order to keep the focus on a particular KVM port either by pressing **P**, or with a left-click of the mouse. See *Invoking Auto Scan*, page 121, for details.
- While you are in Auto Scan mode, you can press the arrow keys to skip through the OSD list:

| | |
|---|---|
| ← | Switches to the previous KVM port in the OSD list. |
| → | Switches to the next KVM port in the OSD list. |
| ↑ | Switches to the first KVM port in the OSD list. |
| ↓ | Switches to the last KVM port in the OSD list. |

  After the amount of time set with the SCAN INTERVAL elapses, Auto Scan mode will switch to the next KVM port.

  When you skip, you only skip to the previous or next available KVM port that is in the Auto Scan mode selection (see page 103).

- To exit Auto Scan mode, press the **[Spacebar]** or **[Esc]**.

## F8: LOUT

LOUT (logout) logs you out of OSD control of the computers, and blanks the KVM console screen. This is different from simply pressing **[Esc]** to deactivate the OSD when you are at the main screen. With this function you must login all over again to regain access to the OSD, whereas with **[Esc]**, all you have to do to reenter the OSD is tap the OSD Hotkey.

**Note:** 1. When you reenter the OSD after logging out, the screen stays blank except for the OSD main screen. You must input your password before you can continue.

2. If you reenter the OSD after logging out, and immediately use [Esc] to deactivate the OSD without having selected a KVM port from the OSD menu, a null port message displays on the screen. The OSD Hotkey will bring up the OSD main screen.

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# Chapter 6
# Hotkey Operation

## Hotkey Port Control

Hotkey port control allows you to provide KVM focus to a particular KVM port directly from the keyboard.

**Note:** Hotkeys work best in single level and basic cascaded or daisy-chained installations. For installations that combine daisy-chaining and cascading, it is simpler, more convenient, and more efficient to use the OSD.

The KM0832 provides the following hotkey port control features:

- Port switching
- Auto scanning
- Skip mode switching

### Invoking Hotkey Mode

All hotkey operations begin by invoking Hotkey mode. You must be viewing a port in the KM0832 KVM installation to invoke Hotkey mode.

To invoke Hotkey mode:

1. Press and hold down the **[Num Lock]** key.
2. Press and release the minus **[-]** key or the asterisk **[*]** key.
3. Release the **[Num Lock]** key.

**[Num Lock] + [-]**

-or-

**[Num Lock] + [*]**

When Hotkey mode is active:

- The Caps Lock, and Scroll Lock LEDs flash in succession. They stop flashing and revert to normal status when you exit Hotkey mode.
- An on-screen command line appears. The command line prompt is the word *HOTKEY:* in white text on a blue background. Text that you key in while in Hotkey mode displays here.
- Ordinary keyboard and mouse functions are suspended—only Hotkey mode compliant keystrokes and mouse clicks (described in the sections that follow), can be input.
- Pressing **[Esc]** or **[Spacebar]** exits Hotkey mode.

## Port Switching

Each KVM port is assigned a port ID based on its position in the KVM installation (see *Single Level Installation*, page 97). After invoking Hotkey mode, you can type a port ID to switch directly to any KVM port in the installation. Depending on the position of the KVM port in the installation, the port ID is composed of up to 4 port numbers separated by hyphens.

### Switching to KVM Ports

To switch to a KVM port:

1. Invoke Hotkey mode (see page 119).
2. At the command prompt, type the port ID. (See *Single Level Installation*, page 97, for a description of the port ID.)

   The port ID numbers display on the command line as you type them. If you make a mistake, use [Backspace] to erase the wrong number.
3. Press **[Enter]**.

   After you press [Enter], the KVM focus switches to the designated KVM port, the port ID is displayed, and you automatically exit Hotkey mode.

## Auto Scanning

Auto Scan mode switches among all the KVM ports that are accessible to the current operator at regular intervals (see *SCAN MODE* under *SET SCAN*, page 103, for information regarding accessible KVM ports). This function is convenient for automatically monitoring the activity of the computers on the installation.

### Setting the Scan Interval

The amount of time Auto Scan mode focuses on each KVM port is set with the SCAN INTERVAL setting of the OSD **F2 SET** function (see *SET SCAN*, page 103). You can change the scan interval before activating Hotkey Auto Scanning, if you wish, with the following hotkey combination:

1. Invoke Hotkey mode (see page 119).
2. Key in **[T] [n]**

   Where [T] is the letter **T**, and [n] is a number from 0–240 that represents the number of seconds for the dwell time.

   The letter **T** and the numbers display on the command line as you key them in. If you make a mistake, use **[Backspace]** to erase the wrong number.
3. Press **[Enter]**

   After you press [Enter], you automatically exit Hotkey mode, and are ready to invoke Auto Scanning.

### Invoking Auto Scan

To start Auto Scanning, key in the following hotkey combination:

1. Invoke Hotkey mode (see page 119).
2. Press **[A]**.

   After you press **A**, you automatically exit Hotkey mode, and enter Auto Scan mode, and Auto Scanning begins.

   - While you are in Auto Scan mode, you can pause the scanning in order to keep the focus on a particular KVM port either by pressing **P** or with a left-click of the mouse. During the time that Auto Scanning is paused, the command line displays: *TUSCAN PAUSED*

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Pausing and exiting are the two ways to stop scanning and keep the focus on a particular KVM port. If you intend to continue scanning after a brief stop, pausing is more convenient than exiting Auto Scan mode completely because when you resume scanning after pausing, you start from where you left off. On the other hand, if you exit and then restart Auto Scan mode, you start over from the very first KVM port on the installation.

To resume Auto Scanning after you pause, press any key or left-click. Scanning continues from where it left off.

- While you are in Auto Scan mode, you can press the arrow keys to skip through the OSD list:

| | |
|---|---|
| ← | Switches to the previous KVM port in the OSD list. |
| → | Switches to the next KVM port in the OSD list. |
| ↑ | Switches to the first KVM port in the OSD list. |
| ↓ | Switches to the last KVM port in the OSD list. |

After the amount of time set with the SCAN INTERVAL elapses, Auto Scan mode will switch to the next KVM port.

When you skip, you only skip to the previous or next available KVM port that is in the Auto Scan mode selection (see page 103).

- While Auto Scan mode is in effect, ordinary keyboard and mouse functions are suspended—only Auto Scan mode compliant keystrokes and mouse clicks can be input. You must exit Auto Scan mode in order to regain normal control of the KVM console.

3. To exit Auto Scan mode press **[Esc]** or **[Spacebar]**. Auto Scanning stops when you exit Auto Scan mode.

## Hotkey Beeper Control

The beeper (see *SET BEEPER*, page 105) can be toggled on and off by means of a hotkey. To toggle the beeper, enter the following hotkey combination:

1. Invoke Hotkey mode (see page 119).
2. Press **[B]**

After you press **B**, the beeper toggles on or off. The command line displays *BEEPER ON* or *BEEPER OFF* for one second; then the message disappears and you automatically exit Hotkey mode.

# Hotkey Summary Table

| | | |
|---|---|---|
| [Num Lock] + [-]<br>-or-<br>[Num Lock] + [*] | [port ID] [Enter] | Switches access to the KVM port that corresponds to that port ID. |
| | [T] [n] [Enter] | Sets the Auto Scan mode interval to **n** seconds—where **n** is a number from 1–240. |
| | [A] | Invokes Auto Scan mode.<br>When Auto Scan mode is in effect, press [P] or left-click to pause Auto Scan mode. When Auto Scan mode is paused, press any key or left-click to resume Auto Scan mode.<br>Press [Esc] or [Spacebar] to exit Auto Scan mode. |
| | [←] | In Auto Scan mode, skips to the previous port in the OSD list.* |
| | [→] | In Auto Scan mode, skips to the next port in the OSD list.* |
| | [↑] | In Auto Scan mode, skips to the first port in the OSD list.* |
| | [↓] | In Auto Scan mode, skips to the last port in the OSD list.* |
| | [B] | Toggles the beeper on or off. |

***** The user's Scan Mode settings and port access rights determine which ports are available in Auto Scan mode. To change Scan Mode settings, see *SET SCAN*, page 103.

# Chapter 7
# Keyboard Emulation

## Mac Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Mac keyboard. The emulation mappings are listed in the table below.

| PC Keyboard | Mac Keyboard |
|---|---|
| [Shift] | Shift |
| [Ctrl] | Ctrl |
| | |
| [Ctrl] [1] | |
| [Ctrl] [2] | |
| [Ctrl] [3] | |
| [Ctrl] [4] | |
| [Alt] | Alt |
| [Print Screen] | F13 |
| [Scroll Lock] | F14 |
| | = |
| [Enter] | Return |
| [Backspace] | Delete |
| [Insert] | Help |
| [Ctrl] | F15 |

**Note:** When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

## Sun Keyboard

The PC compatible (101/104 key) keyboard can emulate the functions of the Sun keyboard when the Control key [Ctrl] is used in conjunction with other keys. The corresponding functions are shown in the table below.

| PC Keyboard | Sun Keyboard |
|---|---|
| [Ctrl] [T] | Stop |
| [Ctrl] [F2] | Again |
| [Ctrl] [F3] | Props |
| [Ctrl] [F4] | Undo |
| [Ctrl] [F5] | Front |
| [Ctrl] [F6] | Copy |
| [Ctrl] [F7] | Open |
| [Ctrl] [F8] | Paste |
| [Ctrl] [F9] | Find |
| [Ctrl] [F10] | Cut |
| [Ctrl] [1] | |
| [Ctrl] [2] | |
| [Ctrl] [3] | |
| [Ctrl] [4] |  |
| [Ctrl] [H] | Help |
| | Compose |
| | ◆ |

**Note:** When using key combinations, press and release the first key (Ctrl), then press and release the activation key.

# Appendix

## Safety Instructions

### General

- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- Do not use the device near water.
- Do not place the device near, or over, radiators or heat registers.
- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- Never spill liquid of any kind on the device.
- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- The device is designed for IT power distribution systems with 230V phase-to-phase voltage.
- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

*(Continues on next page.)*

*(Continued from previous page.)*

- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
- To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position system cables and power cables carefully; Be sure that nothing rests on any cables.
- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - The power cord or plug has become damaged or frayed.
  - Liquid has been spilled into the device.
  - The device has been exposed to rain or water.
  - The device has been dropped, or the cabinet has been damaged.
  - The device exhibits a distinct change in performance, indicating a need for service.
  - The device does not operate normally when the operating instructions are followed.
- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- Do not connect the RJ-11 connector marked “UPGRADE” to a public telecommunication network.

## Rack Mounting

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.
- Always load the rack from the bottom up, and load the heaviest item in the rack first.
- Make sure that the rack is level and stable before extending a device from the rack.
- Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.
- After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.
- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.
- Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.
- Ensure that proper airflow is provided to devices in the rack.
- Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer.
- Do not step on or stand on any device when servicing other devices in a rack.

# Technical Support

Technical support is available both by email and online (with a browser over the web):

## International

| | | |
|---|---|---|
| Email Support | | support@aten.com |
| Online Support | Technical Support | http://support.aten.com |
| | Troubleshooting<br>Documentation<br>Software Updates | http://www.aten.com |
| Telephone Support | | 886-2-8692-6959 |

## North America

| | | | |
|---|---|---|---|
| Email Support | | ATEN TECH | support@aten-usa.com |
| | | ATEN NJ | sales@aten.com |
| Online Support | Technical Support | ATEN TECH | http://www.aten-usa.com/support |
| | | ATEN NJ | http://support.aten.com |
| | Troubleshooting<br>Documentation<br>Software Updates | ATEN TECH | http://www.aten-usa.com |
| | | ATEN NJ | http://www.aten.com |
| Telephone Support | | ATEN TECH | 1-888-999-ATEN |
| | | ATEN NJ | 1-732-356-1703 |

When you contact us, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase.
- Your computer configuration, including operating system, revision level, expansion cards, and software.
- Any error messages displayed at the time the error occurred.
- The sequence of operations that led up to the error.
- Any other information you feel may be of help.

# Specifications

| Function | | KM0832 |
|---|---|---|
| Computer Connections | Direct | 32 |
| | Max | 8,000 |
| Console Connections | | 8 |
| Port Selection | | OSD, Hotkeys |
| Connectors | Console Port | 8 x RJ-45 female |
| | KVM Port | 32 x RJ-45 female |
| | Daisy-chain | 1 x HPDB-50 female (Black) |
| | Configuration | 1 x RJ-45 female |
| | Maintenance | 1 x RJ-45 female |
| | Power | 1 x 3-prong AC Socket |
| Switches | Reset | 1 x Semi-recessed Pushbutton |
| | Power | 1 x Rocker |
| | F/W Upgrade Recovery | 1 x Slide |
| | User Port 1 | 1 x Slide |
| LEDs | User Port (On Line) | 8 (Green) |
| | KVM Port (On Line/Selected) | 32 dual-colored (Green/Red) |
| | Power | 1 (Blue) |
| I/P Rating | | 100–240V, 50/60Hz; 1A |
| Power Consumption | | 120V/19W; 230V/20W |
| Emulation | Keyboard/Mouse | PS/2; USB (PC, Mac, Sun); serial |
| Scan Interval | | 1–240 seconds |
| Video | | 1024x768@60Hz (300m max.); DDC2B |
| Environment | Operating Temperature | 0–50$^{o}$ C |
| | Storage Temperature | -20–60$^{o}$ C |
| | Humidity | 0–80% RH, non-condensing |
| Physical Properties | Housing | Metal |
| | Weight | 4.90 kg |
| | Dimensions (L x W x H) | 43.80 x 38.00 x 4.40 cm |

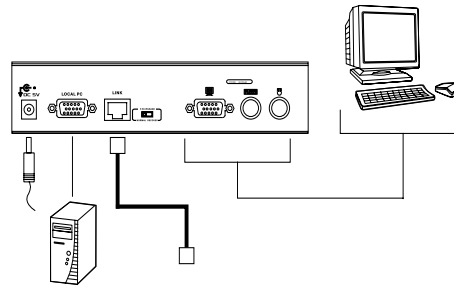
# Factory Default Settings

The factory default settings are as follows:

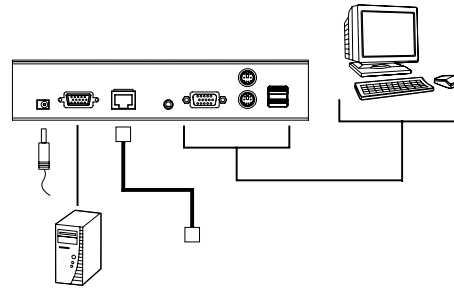
| Setting | Default |
|---|---|
| View Mode | Accessible + Powered |
| Port ID Display Mode | The Port Number plus the Port Name |
| Port ID Display Position | Upper Left Corner |
| Port ID Display Duration | User Defined (3 seconds) |
| Scan Duration | 5 seconds |
| Scan Mode | Accessible + Powered |
| OSD Hotkey | [Scroll Lock] [Scroll Lock] |
| Logout Timeout | 0 (Disabled) |
| Screen Blanker | 0 (Disabled) |
| Hotkey Command Mode | On (Enabled) |
| Beeper | On (Activated) |
| Idle Timeout | 5 seconds |
| Port Note | None |
| Port Operating System | Windows (PC compatible) |
| Port Language | U.S. English |
| Port Access | None (Super Administrators and Administrators have full access) |
| Webpage Session Timeout | 3 minutes |
| IP Address | 192.168.0.10 |
| Subnet Mask | 255.255.255.0 |
| Default Gateway | 192.168.0.254 |
| HTTP Port | 80 |
| HTTPS Port | 443 |
| DHCP Enabled | No (Disabled) |
| SMTP Server Mail Notification | No (Disabled) |
| Date & Time | Synchronize with my computer |
| Daylight Saving Time | Enabled |

# Additional Installation Diagrams

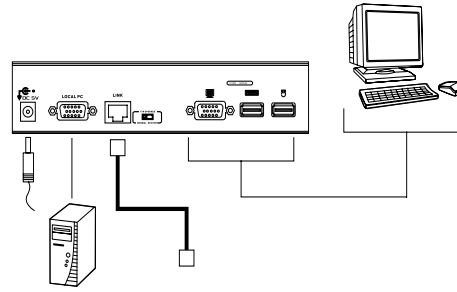
## KA9222A PS/2 Console Module



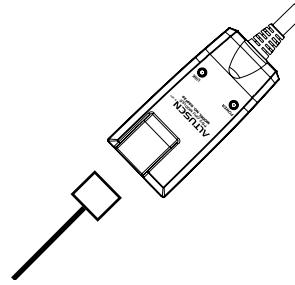
## KA9233 PS/2-USB Console Module



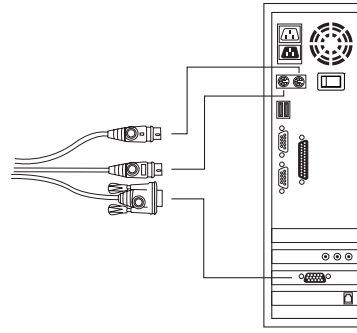
## KA9272A USB Console Module



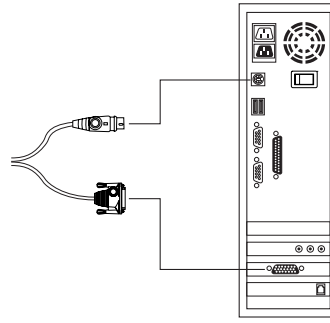
## KM0832 to KVM Adapter Cable Connection



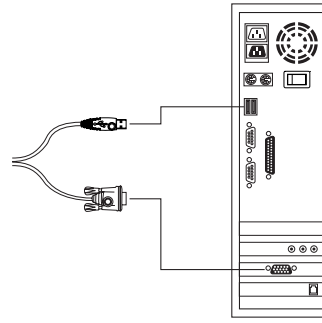
## KA9120 PS/2 KVM Adapter Cable



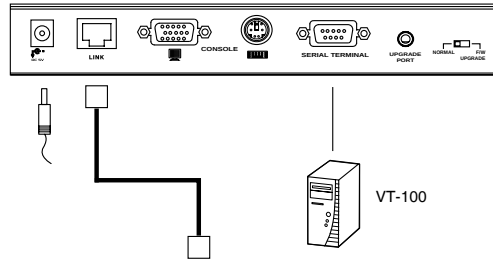
## KA9130 Sun Legacy KVM Adapter Cable



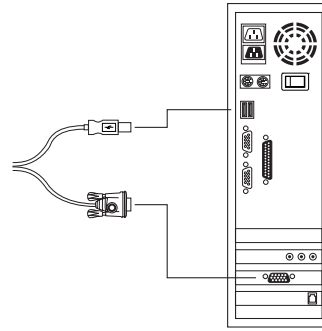
## KA9131 Sun USB KVM Adapter Cable



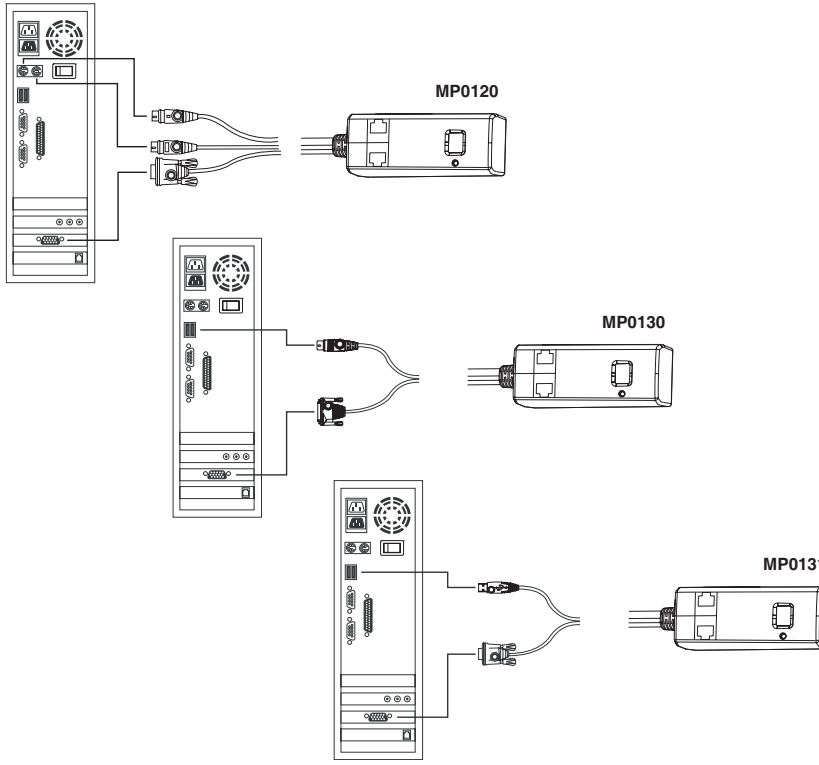
## KA9140 Serial KVM Adapter Cable




## KA9170 USB KVM Adapter Cable



## Matrix Plus KVM Adapter Cables



# Supported KVM Switches

The table below lists KVM switches that are compatible with the KM0832 and the type of expansion that they use. (KVM switches listed below are sold separately. Contact your dealer for details.)

| Expansion Type | Brand | Model | Name |
|---|---|---|---|
| Cascade | ALTUSEN | KM0832 | 8 Console 32 Port Matrix KVM Switch |
| Daisy-chain | ALTUSEN | KM0432 | 4 Console 32 Port Matrix KVM Switch |
| Daisy-chain | ALTUSEN | KM0216 | 2 Console 16 Port Matrix KVM Switch |
| Cascade | ALTUSEN | MP0120 | Matrix Plus PS/2 KVM Adapter Cable |
| Cascade | ALTUSEN | MP0130 | Matrix Plus Sun Legacy KVM Adapter Cable |
| Cascade | ALTUSEN | MP0131 | Matrix Plus USB KVM Adapter Cable |
| Cascade | ALTUSEN | KH88 | 8 Port High-Density KVM Switch |
| Cascade | ALTUSEN | KH98 | 8 Port Health Manager KVM Switch |
| Cascade | ATEN | CS88A | 8 Port PS/2 KVM Switch |
| Cascade | ATEN | CS9138 | 8 Port PS/2 KVM Switch |

Please keep in mind the following limitations when installing more than one KVM switch. Where distances are mentioned, they refer to the cumulative length of all cables used to connect the devices.

- The maximum distance from any console module to the lowest-level KVM switch (or Matrix Plus KVM adapter cable in a chain) cannot exceed 300 meters.
- The maximum distance between any two KM0832 cannot exceed 150 meters.
- Once a non-KM0832 KVM switch has been cascaded from a KVM port, no other KVM switch can be cascaded from that KVM port.
- The maximum distance between the KM0832 and the last KM0432 or KM0216 in the daisy-chain cannot exceed 20 meters, regardless of the number of KM0432 or KM0216 in the daisy-chain.
- The maximum distance between any two KVM switches in the daisy-chain cannot exceed 10 meters.
- Only 4 or 2 KVM console users (or one KM0832 Administrator Utility user) at a time can access daisy-chained KM0432 or KM0216.

# Trusted Certificates

## Overview

When you try to login to the KM0832 from your Web browser, a Security Alert message appears to inform you that the device's certificate is not trusted, and asks if you want to proceed.

Security Alert
Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.
The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.
The security certificate date is valid.
The name on the security certificate is invalid or does not match the name of the site
Do you want to proceed?
Yes
No
View Certificate

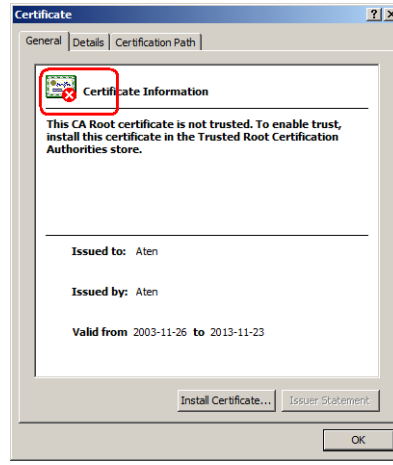
The certificate can be trusted, but the alert is triggered because the certificate's name is not found on Microsoft's list of Trusted Authorities. You have two options: 1) you can ignore the warning and click **Yes** to go on; or 2) you can install the certificate and have it be recognized as trusted.

- If you are working on a computer at another location, accept the certificate for just this session by clicking **Yes**.
- If you are working at your own computer, install the certificate on your computer (see below for details). After the certificate is installed, it will be recognized as trusted.

## Installing the Certificate

To install the certificate:

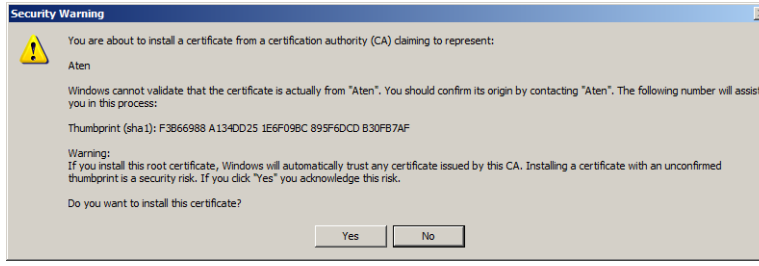
1. In the **Security Alert** dialog box, click **View Certificate**. The **Certificate** dialog box appears.




**Note:** There is a red and white **X** logo over the certificate to indicate that it is not trusted.

2. Click **Install Certificate**.

3. Follow the Installation Wizard to complete the installation. Unless you have a specific reason to choose otherwise, accept the default options. The Wizard presents a caution screen:


Security Warning
You are about to install a certificate from a certification authority (CA) claiming to represent:
Aten
Windows cannot validate that the certificate is actually from "Aten". You should confirm its origin by contacting "Aten". The following number will assist you in this process:
Thumbprint (sha1): F3B66988 A134DD25 1E6F09BC 895F6DCD B30FB7AF
Warning:
If you install this root certificate, Windows will automatically trust any certificate issued by this CA. Installing a certificate with an unconfirmed thumbprint is a security risk. If you click "Yes" you acknowledge this risk.
Do you want to install this certificate?
Yes
No

*(Continues on next page.)*

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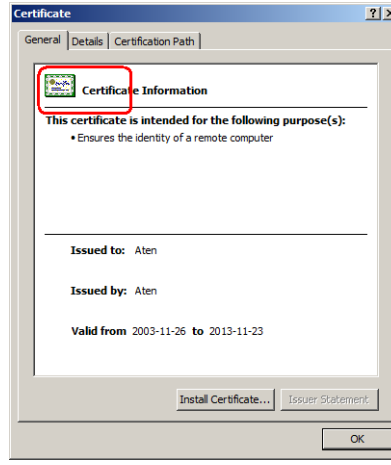
4. Click **Yes**.
5. Click **Finish** to complete the installation.
6. Click **OK** to close the dialog box.

## Certificate Trusted

The certificate is now trusted:

Security Alert
Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.
The security certificate is from a trusted certifying authority.
The security certificate date is valid.
The name on the security certificate is invalid or does not match the name of the site
Do you want to proceed?
Yes
No
View Certificate

When you click **View Certificate**, you can see that the red and white **X** logo is no longer present—further indication that the certificate is trusted.



# Troubleshooting

## Overview

Operation problems can be due to a variety of causes. The first step in solving them is to make sure that all cables are securely attached and seated completely in their sockets.

In addition, updating the product's firmware may solve problems that have been discovered and resolved since the prior version was released. If your product is not running the latest firmware version, we strongly recommend that you upgrade. See*Upgrading Firmware*, page 75, for upgrade details.

## General

| Problem | Solution |
|---|---|
| I can't use the KA9222 or KA9272 Console Modules with the KM0832. | The KM0832 does not support these two console modules. Instead, use the KA9222A, KA9272A, and KA9233 Console Modules with the KM0832. |
| The KVM console monitor does not display and there is no response to keyboard and mouse input. | 1. Verify that all cables are securely connected and in good condition, including those of the console modules, KVM adapter cables, and Cat 5 cable.<br>2. Upgrade the firmware for the KVM adapter cables. |
| I can't use the KA9222A and KA9272A Console Modules to login to the KM0832. | 1. Verify that the username and password are correct. If after verifying that the username and password are correct you still cannot login, then follow Step 2.<br>2. Upgrade the firmware version of the console modules. |
| I can't use an Ethernet hub to connect the console modules and KVM adapter cables to the KM0832. | Although Cat 5 cable is used to connect the console modules and KVM adapter cables to the KM0832, it does not support the Ethernet protocol; thus, you cannot use an Ethernet hub to connect them. |
| The password for the default super administrator account needs to be reset. | See *Restoring Original Factory Default Settings*, page 144 |
| I upgrading the firmware, but some of the modules were not upgraded successfully. | See *Upgrade Failed*, page 81 |
| The firmware upgrade process was prematurely aborted and now some of the modules are inoperable. | See *Recovering from a Failed Firmware Upgrade*, page 82 |

*(Continues on next page.)*

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| Problem | Solution |
|---|---|
| I can't upgrade the firmware version. | Make sure that you have selected the correct firmware upgrade package and try again. When upgrading the firmware through the KM0832 Administrator Utility, use a firmware upgrade package with an FW extension. When the system is unavailable due to a system failure, use a firmware upgrade package with an EXE extension to reinstall the firmware. (See *Upgrading Firmware*, page 75) |
| I can't access the KM0832 either through the OSD or the KM0832 Administrator Utility. | 1. Perform a system reset (see *KM0832 Front View*, page 6).<br>2. Reinstall the firmware (see *Upgrading Firmware via the Firmware Upgrade Utility*, page 78). |
| When I login, the browser generates a *CA Root certificate is not trusted*, or a *Certificate Error* response. | The certificate can be trusted. See *Supported KVM Switches*, page 137, for details. |
| Some characters I enter from the keyboard do not display correctly. | Change the keyboard layout setting for the port to match the layout of the keyboard that you are using.<br>To change the keyboard layout setting:<br>1. Open the Port Management Webpage for the port in which you are having the problem. (See *Port Management*, page 61.)<br>2. In the **Keyboard Layout** field, select the layout of the keyboard you want to use.<br>3. Click **Save.**<br>4. If the computer attached to the port is a Sun server or iMac, or if changing the keyboard layout setting doesn't immediately resolve the problem, reboot the computer. After rebooting, the characters you enter from the keyboard should display properly. |
| I can't use the special keys on my Apple (Sun) keyboard to control Mac (Sun) computers. | Change the keyboard setting for the port to match the keyboard that you are using.<br>To change the keyboard setting:<br>1. Open the Port Management Webpage for the port in which you are having the problem. (See *Port Management*, page 61.)<br>2. In the **Keyboard** field, select the keyboard you want to use.<br>3. Click **Save.**<br>4. Reboot the computer attached to the port. After rebooting, you should be able to use the special keys on your keyboard to control the computer. |

## Sun Systems

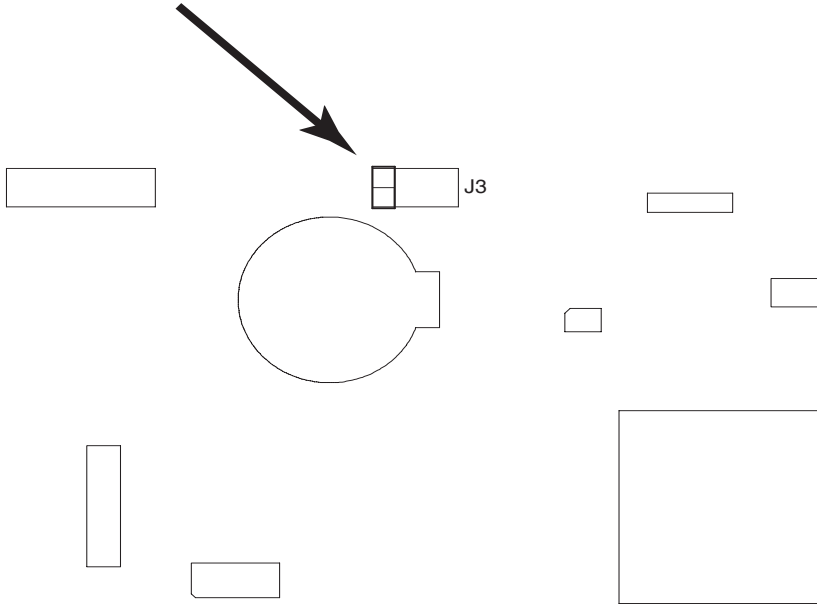
| Problem | Solution |
|---|---|
| Video display problems with HDB-15 interface systems (e.g. Sun Blade 1000 servers). | The display resolution should be set to 1024 x 768 @ 60Hz.<br>Under Text Mode:<br>1. Enter the ok prompt (see page 141) and issue the following firmware commands:<br>`setenv output-device screen:r1024x768x60`<br>`reset-all`<br>Under XWindow:<br>1. Open a console and issue the following command:<br>`m64config -res 1024x768x60`<br>2. Log out.<br>3. Log in. |
| Video display problems with 13W3 interface systems (e.g. Sun Ultra servers).* | The display resolution should be set to 1024 x 768 @ 60Hz.<br>Under Text Mode:<br>1. Enter the ok prompt (see page 141) and issue the following firmware commands:<br>`setenv output-device screen:r1024x768x60`<br>`reset-all`<br>Under XWindow:<br>1. Open a console and issue the following command:<br>`ffbconfig -res 1024x768x60`<br>2. Log out.<br>3. Log in. |

***** These solutions work for most common Sun VGA cards. If these procedures fail to resolve the problem, consult the manual for the Sun VGA card.

## Restoring Original Factory Default Settings

You can restore the original factory default settings for the KM0832 Matrix KVM Switch. The original password for the default super administrator account is restored; all super administrator, administrator, user, and group accounts are removed from the system. Only the station name, Webpage Session Timeout setting, network settings, and date and time are retained. This procedure requires the use of a jumper cap.

1. Turn off the KM0832 and unplug the power cord.
2. Remove the cover of the KM0832.
3. Place a jumper cap over pins 1-2 of the J3 jumper on the mainboard.




4. Plug in the power cord and turn on the KM0832. The following directions appear on the KVM console screen:

   ```
   USERNAME AND PASSWORD INFORMATION AND PORT/USER
   INFORMATION HAS BEEN CLEARED. PLEASE POWER OFF THE
   SWITCH, REMOVE THE JUMPER, CLOSE THE CASE, THEN
   RESTART.
   ```

5. Turn off the KM0832 and unplug the power cord.

6. Remove the jumper cap from pins 1-2 of the J3 jumper.
7. Replace the cover on the KVM switch. Plug in the power cord and turn on the KM0832.
8. You should now use the default username and password to login to the KM0832 Administrator Utility and OSD.

## Entering the ok Prompt (Sun Solaris)

If you are using a PC keyboard to control a Sun Solaris server and want to use Stop-A keys to enter the `ok` prompt, do the following:

**Note:** Before entering the `ok` prompt, consult the server's documentation for any precautionary steps that you should take.

Press and release **[Ctrl]**, press and hold down **[T]**, and then press **[A]**.

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ALTUSEN warrants this product against defects in material or workmanship for a period of one (1) year from the date of purchase. If this product proves to be defective, contact ALTUSEN's support department for repair or replacement of your unit. ALTUSEN will not issue a refund. Return requests can not be processed without the original proof of purchase.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. Include your proof of purchase in the packaging and the RMA number clearly marked on the outside of the package.

This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

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# Index

## A


accounts, managing, 47, 53, 106
activating the OSD, 104
Active Sessions Webpage, 87
  force logout, 87
  viewing, 87
administrator functions, 106
  accounts, managing, 106
  ports, managing, 109
  SADM configuration, 113
  stations, naming, 112
  system information, 112
Administrator Utility
  active sessions, viewing, 87
  backing up settings, 84
  date and time, setting, 45
  default username and password, 34
  event log, 89
  factory default settings, 132
  firmware, upgrading, 75
  force logout, 87
  groups, managing, 47
  Help, 92
  icons, 37
  IP address, setting, 32
  log file, 89
  logging in, 34
  logging out, 92
  managing groups, 47
  managing port access rights, 51, 59
  managing ports, 61
  managing users, 53
  menus, 36
  naming stations, 40
  network settings, 42
  OSD user settings, 72
  OSD view settings, 69
  overview, 31
  password, default, 34
  passwords, setting, 73
  port access, 62
  port access rights, managing, 51, 59
  port settings, 66
  port status, 39
  ports, managing, 61
  restoring previous settings, 84
  restoring user defaults, 73
  search, 74
  stations, naming, 40
  system information, 91
  system log, 90
  time, setting, 45
  upgrading firmware, 75
  user defaults, restoring, 73
  user settings, OSD, 72
  username, default, 34
  users, managing, 53
  view, OSD, 69
  Webpage Session Timeout, 41
Auto Scan mode, 116, 121
  configuring, 71, 103
  invoking, 121
  pausing, 121
  setting scan interval, 103, 121
  stopping, 122

## B

Backup and Restore Settings Webpage, 85
beeper, 73, 105
  Hotkey, 123
Broadcast mode, 114

## C

cables, 5
cascading, 19
  Matrix Plus KVM adapter cables, 22
chaining, daisy, 25
CONFIGURATION port, 28
console modules, 4, 9
  installation diagrams, 133
CPU modules. *See* KVM adapter cables

## D

daisy-chaining, 25
Date & Time Webpage, 45
date, setting, 45, 113
default settings, factory, 132
default username and password, 34, 94
desktop mounting, 10

## E

e-mail notification, 44
Event Log Webpage, 89

## F

F1 HELP, 102
F2 VIEW, 102
F3 SET, 104
F4 ADM, 106
F5 SCH, 115
F7 SCAN, 116
F8 LOUT, 117
factory default settings, 132
  restoring, 144
firmware upgrade, 75
  recovery, 82
Firmware Upgrade Webpage, 76
force logout, 87

## G

Group Information Webpage, 48
Group Management Webpage, 49
groups, managing, 47, 106

## H

Help, 92
hot plugging, 29
Hotkey
  beeper control, 123
  Command mode, 73, 104
  port control, 119
  port selection, 120
  summary table, 124
Hotkey mode, invoking, 119

## I

Idle Timeout function, 73, 105
installation
  cascading, 19
  console modules, 133
  daisy-chaining, 25
  KVM adapter cables, 134
  Matrix Plus KVM adapter cables, 22
  multilevel, 18
  network, 28
  overview, 9
  single level, 16
invoking Hotkey mode, 119
IP address, assigning, 32, 43, 113

IP address, default, 132
IP Installer, 43

## K

Keyboard Emulation
  Mac, 125
  Sun, 126
keyboard language layout, 111
keyboard layout, 67
keyboards, 67
KM0832
  assigning names, 40
  desktop mounting, 10
  front view, 6
  rack mounting, 10
  rear view, 8
  stacking, 10
KM0832 Administrator Utility. *See* Administrator Utility
KVM adapter cables, 5, 9
  displaying, 96
  installation diagrams, 134
  Matrix Plus, 22

## L

log file, 89
logging in
  Administrator Utility, 34
  OSD, 93
logging out
  Administrator Utility, 92
  force, 87
  OSD, 117
Login Webpage, 34
Logout Timeout function, 73, 104

## M

Main Webpage, 35
managing
  groups, 47, 106
  port access rights, 51, 59
  ports, 61, 109
  users, 53, 107
Matrix Plus KVM adapter cables, 22
mounting
  desktop, 10
  rack, 11
MP0101. *See* Matrix Plus KVM adapter cables

## N

naming stations, 40, 112
network installation, 28
Network Settings Webpage, 42
notification, e-mail, 44
NTP server, synchronizing, 45

## O

Online
  Registration, iii
OSD
  accounts, managing, 106
  activating, 104
  administrator functions, 106
  Auto Scan mode, 116
  beeper, 73, 105
  broadcasting commands, 114
  date and time, setting, 113
  default username and password, 94
  factory default settings, 132
  functions, 101
  Hotkey, 73, 93, 104
  Idle Timeout function, 73, 105
  logging out, 117
  Logout Timeout function, 73, 104
  main screen, 95
  main screen headings, 96

managing ports, 109
naming stations, 112
navigating, 96
overview, 93
password, default, 94
passwords, setting, 104
port defaults, restoring, 111
port ID, 103
port shortcuts, 102
ports, managing, 109
restoring port defaults, 111
restoring user defaults, 105
Screen Blanker function, 73, 104
Search function, 115
shortcuts, port, 102
stations, naming, 112
system information, 112
time, setting, 113
user defaults, restoring, 105
user settings, 72, 104
username, default, 94
View mode, 102
view settings, 69

## P

password, default, 34, 94
passwords, setting, 73, 104
pausing Auto Scan mode, 116
personal view, setting, 70, 102
port access rights, managing, 51, 59
port ID, 39, 103
numbering, 99
Port Management Webpage, 63
port note, 39, 96
setting, 67, 111
Port Select Webpage, 61, 68
ports
access, 62, 109
keyboard language layout, 67, 111
keyboards, 67
managing, 61, 109
operating systems, 111
selection, 30
settings, 66, 111
shortcuts, 102
status, 39
powering off, 30

## R

rack mounting, 10
front, 13
rear, 14
split, 11
Requirements
Operating Systems, 5
OS Support, 5
restarting, 30
restoring
factory default settings, 144
previous settings, 84
stations and ports, 61, 111
user defaults, 73, 105
RoHS, ii

## S

Safety Instructions
General, 127
Rack Mounting, 129
scanning. *See* Auto Scan mode
Screen Blanker function, 73, 104
Search function, 115
Search Webpage, 74
SET, 104
setting
Auto Scan mode interval, 121
date and time, 45, 113

OSD view, 69, 102
passwords, 73, 104
personal view, 70, 102
Settings Webpage, 72
shortcuts, port, 102
Simple Mail Transfer Protocol
configuration, 44
SJ/T 11364-2006, ii
Skip mode, 71, 103, 116, 122
SMTP. *See* Simple Mail Transfer Protocol
Specifications, 131
stacking, 10
Station Management Webpage, 40
station positions, switching, 29
stations, naming, 40, 112
switching station positions, 29
switching to ports, 120
system event report, 44
System Information Webpage, 91
System Log Webpage, 90
System Requirements
Computers, 4
system requirements
cables, 5
computers, 4

## T

Technical Support, 130
Telephone support, iii
time server. *See* NTP server
time, setting, 45, 113
troubleshooting, 141
Trusted Certificates, 138

## U

upgrading firmware, 75
user defaults, restoring, 73, 105
User Information Webpage, 54
User Management Webpage, 57
User Notice, iii
user settings, OSD, 72, 104
username and password, default, 34, 94
users, managing, 53, 107

## V

View Webpage, 69
view, OSD, 69, 102
viewing active sessions, 87

## W

Webpage Session Timeout, 41
Webpages
Active Sessions, 87
Backup and Restore Settings, 85
Date & Time, 45
Event Log, 89
Firmware Upgrade, 76
Group Information, 48
Group Management, 49
Login, 34
Main, 35
Network Settings, 42
Port Management, 63
Port Select, 61, 68
Port Status, 39
Search, 74
Settings, 72
Station Management, 40
System Information, 91
System Log, 90
User Information, 54
User Management, 57
View, 69